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November 21, 2012

Mr. Peter Ramanauskas
Regional PCB Coordinator
Ralph Metcalfe Federal Building
77 West Jackson Blvd.
Chicago, IL 60604-3590

**Re: Self-Implementing PCB Remediation Work Plan
Former J&L Steel Lagoons
1500 West Main Street
Louisville, Stark County, Ohio**

Dear Mr. Ramanauskas:

Brownfield Restoration Group, LLC (BRG) submits the enclosed PCB Remediation Work Plan to describe our proposed self-implementing cleanup in accordance with 40 CFR 761.61(c) at the above referenced site. Please review this plan and advise us, at your earliest convenience, if you have any comments. Site redevelopment is pending completion of the planned remediation and it is important to the current landowner and the City of Louisville to commence this work as soon as possible. Please note the following highlights of the proposed remedial action plan:

- The assessment and remediation work at this site is being conducted under the Ohio EPA Voluntary Action Program (VAP). The goal of the assessment and remediation project work being conducted on the Property is to demonstrate that applicable and appropriate TSCA (as it pertains to the PCB contamination) and VAP standards have been met so that the results can be compiled into a comprehensive NFA document in accordance with the VAP rules and requirements and a Covenant Not To Sue can be issued for the Property by the Ohio EPA.
- The PCB contamination is limited to the surface of the ground water table in the form of floating oil product within a defined area of the site. Removal of the PCB laden oil product is the focus of this self-implementing remedial action.
- Ground water at the site has not been impacted by the PCB contamination as demonstrated by sampling and analysis of a ground water monitoring network consisting of 26 wells.
- A network of approximately 1,200 lineal feet of free product recovery trenches has been excavated to the ground water table in the impacted area.
- Accumulated free product will be evacuated from the ground water surface using a vacuum-truck. Oil re-accumulation will be monitored and evacuation events will be repeated until a product layer no longer redevelops on the exposed ground water table or is too thin to be practically recovered with this method. Oil product

containing PCB contamination in excess of 50 ppm will be removed from the site and incinerated at a properly licensed facility.

- Upon completion of the product removal, a risk assessment will be performed to evaluate each potentially complete exposure pathway to demonstrate that residual PCBs, if any, will not be harmful to human health or the environment.

We appreciate your assistance in reviewing this plan. Please contact me at (330) 668-4600 if you have any questions or if you require further information.

Respectfully submitted,

Brownfield Restoration Group, LLC



Jim C. Smith, CPG
President

CERTIFICATION STATEMENT

**Self-Implementing PCB Remediation Work Plan – Written Certification
Former J&L Steel Lagoons
1500 West Main Street
Louisville, Stark County, Ohio**

Pursuant to (§ 761.61(a)(3)(i)(E)), Mr. Brad Ashford as a representative of Chesapeake Land Development Company (the owner) and Mr. Bill Jeffries as a representative of Groffre Investments (party conducting the cleanup) hereby certifies that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file at:

Brownfield Restoration Group, LLC
1000 South Cleveland-Massillon Road
Suite 106
Akron, Ohio 44333
330-668-4600

These files are available for EPA inspection.


Mr. Brad Ashford
Chesapeake Land Development Company

11/21/2012
Date


Mr. Bill Jeffries
Groffre Investments

11/21/2012
Date


Mr. Jim C. Smith
Brownfield Restoration Group, LLC

11-21-12
Date



PCB REMEDIATION WORK PLAN

**Former J&L Lagoons Site
Louisville, Stark County, Ohio**

November 21, 2012

Background

Brownfield Restoration Group, LLC (BRG) performed a Phase II Property Assessment (Phase II) pursuant to the Ohio EPA Voluntary Action Program (VAP) rules at the site known as the J&L Lagoons Site (the "Property"), located at 1500 West Main Street in the City of Louisville, Stark County, Ohio. Funding for this assessment project was received by the City of Louisville through the Clean Ohio Assistance Fund. The Volunteer for the Property is the City of Louisville. The Property is being developed for Chesapeake Energy as the site of their new regional headquarters and an equipment and supply yard in support of their Utica Shale oil and gas operations. The site development work is being performed by the previous Property owner, Groffre Investments. Although the Property is currently privately owned, the City of Louisville has been granted right-of-entry to the site for the purpose of implementing the Clean Ohio grant for environmental assessment of the Property.

The Property contains 115.73 acres of commercial/industrial land (Figure 1) located within a mixed-use area of the City of Louisville. The Property was addressed as 1500 West Main Street, Louisville, Ohio when it was a part of the adjacent industrial steel manufacturing facility. The most significant former occupants of the Property include J&L Specialty Steel Inc., J&L Specialty Products Corp., Jones & Laughlin Steel, and Superior Sheet Steel. The Property does not include the buildings currently or formerly in use by Allegheny Ludlum or J&L Specialty Steel.

Historical documentation indicates that the Property was largely undeveloped until circa 1920, when an industrial steel plant was constructed adjacent to the Property. The Property has been occupied by some of the steelmaking operations (e.g., lagoons), as well as a farm and associated agricultural fields, since that time. The Property was split from the steel plant property in 2004 when Groffre Investments bought the Property. The adjacent steel mill facility has been used for the following purposes: pickling, annealing, slitting, shot blasting and rolling stainless steel coils. The Property is currently occupied

by vacant land (former lagoons) or farmland. The site contains nine former lagoons, described as follows:

- Former Emergency Lagoon (Lagoon 1);
- Former Equalization Lagoon (Lagoon 2);
- Former Center Lagoon (Lagoon 3);
- Former Hot Mill Quench Pond/Mill Scale Settling Lagoon (Lagoon 4);
- Former Rinse Water Sludge Disposal Lagoons (Lagoons 5 and 8);
- Former Lime-Stabilized Waste Pickle Liquor Lagoons (Lagoons 6, 7, and 9).

During the assessment work completed at the Property, free product was encountered in borings and monitoring wells installed into former Lagoon 7. A historic lagoon location map is included in Attachment A as Figure 2.

Site Assessment and Characterization

This site has been the subject of Phase I and Phase II Property Assessments under the Ohio EPA Voluntary Action Program (VAP). Assessment work completed to date includes the installation of 67 soil borings, converting 26 of the borings into two inch monitoring wells, and collecting 38 near surface soil samples from the VAP soil direct contact point of compliance (i.e., 0 to 2 feet), yielding 166 soil samples and 39 ground water samples. Laboratory analyses indicate that the site has been impacted by the past industrial use of the Property. Elevated levels of some chemicals of concern (COCs), consisting of lead, arsenic, and residual petroleum hydrocarbons (TPH – diesel- and oil-range organics) have been detected in soil sporadically across the Property. However, only limited areas of the Property have yielded samples that have been demonstrated to contain concentrations of COCs that exceed their applicable direct-contact soil standards (DCSS) for commercial and industrial land use and construction/excavation workers. Elevated levels of metals above unrestricted potable use standards (UPUS) including, but not limited to, chromium and nickel were detected in ground water below the Property.

Low concentrations of PCBs, ranging between 0.039 mg/kg, or parts per million (ppm), and 2.6 mg/kg were detected in soil, and concentrations of PCBs above laboratory method limits were not detected in ground water at the Property. Concentrations of PCBs greater than 50 ppm are limited to the oil product floating on the ground water surface. Oil product chromatographic analysis and comparison with indexed compounds indicate that its characteristics are similar to diesel fuel and motor oil.

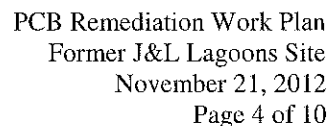
In order to define the limits of the soil saturation and the potential for encountering oil product at the ground water interface, a subsurface investigation was performed in a targeted area of the site using ultraviolet optical screening tools (UVOST). UVOST interfaces with a direct push drilling rig and measures the comparative amount of petroleum impact in the subsurface environment. An ultraviolet signal is projected into the formation and the level of signal reflection received by the optical device, measured in percentage, indicates the relative presence of petroleum contamination. The potential for petroleum contamination generally correlates with higher UVOST value measurements compared with lower value measurements. The Phase II sampling plan, including the implementation of UVOST, has determined that the oil product encountered at the site is generally limited to the portion of the site formerly characterized by Lagoon 7 and is referred to herein as the target PCB remediation area. *was 2nd push/w/uvost*

Soil and ground water sample locations within the target PCB remediation area showing distributions of PCB concentrations, as well as analytical results above applicable DCSS and UPUS, are provided in Attachment A as Figure 3 and Figure 4, respectively. UVOST sampling locations are also provided in Attachment A as Figure 5. Laboratory analytical results from soil and ground water samples collected within the PCB remediation area of the site are provided in Attachment B as Table 1 and Table 2, respectively. Assessment soil boring logs and UVOST screening logs from borings advanced within the PCB remediation area are provided as Attachment C. Copies of the analytical reports are provided as Attachment D (on CD).

How was this determined because the figures seem to show only Lagoon 7 was investigated. Ground water affected by floating oil product contaminated with PCBs has been determined to be limited to the area of the Property generally characterized by historic Lagoon 7. The exact cause and original point source of the PCB-contaminated oil product is unknown; however, the contamination identified in this area of the Property is believed to be related to the former waste disposal activities of the adjacent steel mill. PCB-contaminated oil product floating on the surface of shallow ground water below the targeted portion of the site is proposed to be actively removed, to the extent practical.

PCB Cleanup Standard

The PCB standards for a No Further Action (NFA) letter under the VAP are dependant upon the future intended land use. At this site, the Property is being redeveloped for commercial/industrial use. The VAP standard for direct contact with



Ground water sampling and analysis indicate that the PCBs have not dissolved into the ground water at significant concentrations, which is likely due to the low solubility of PCBs and the petroleum product containing them. Concentrations of PCBs above laboratory method limits were not detected in ground water below the Property, which demonstrates that ground water has not been adversely impacted by the PCBs. A sample of the oil product mixed with ground water obtained from an affected monitoring well yielded a total PCB concentration of 41 µg/L, or parts per billion; however, additional sampling and analysis of the petroleum product floating on the ground water table within portions of former Lagoon 7 has determined that the oil product contains PCBs at concentrations up to 180 ppm. Free floating petroleum product must be remedied in accordance with the VAP rules. Under the VAP, free product must be removed from the ground water to the extent practical, or it must be demonstrated through a Property-Specific Risk Assessment that the product is not having, and will not have, an adverse impact on human health or the environment if it is allowed to remain in place. The intent of this work plan is to accomplish both product removal and risk assessment to demonstrate no adverse effect from any residual product that may remain after removal actions are completed.

The following remedial actions will be implemented at this site in order to ensure compliance with the applicable VAP standards:

- A series of oil recovery trenches have been excavated in the free product area based on assessment sampling results and interpretation of the UVOST findings. The depth of the trenches extends to approximately one foot below the ground water table (approximately 18 to 20 feet below grade). Refer to Figure 6 in Attachment A for a layout of the oil recovery trenches.
- Accumulated free product will be evacuated from the ground water surface using a vacuum-truck and/or pumps. Oil re-accumulation will be monitored and evacuation events will be repeated until a product layer no

longer redevelops on the exposed ground water table or is too thin to be practically recovered with this method. *"has this been done since operation of tanks? what are the tanks?"*

- The oil/water fluids recovered from the trenches will be transported to a facility licensed and permitted to accept and dispose of PCB-contaminated fluids of this nature. *what is the name of the company receiving?*

- The soils removed from the trenches during excavation will be sampled and analyzed for PCBs and Total Petroleum Hydrocarbons (TPH). Any soils exhibiting concentrations of PCBs greater than the VAP direct-contact standard for construction/excavation workers of 42 ppm or TPH above applicable saturation levels will be removed from the site and disposed of at a facility properly licensed and permitted to receive such waste. Soil not removed from the site for disposal will be placed back into the trenches as backfill upon completion of oil recovery operations. *is this the standard? 42 ppm or TPH?*

- The entire lagoon area, including the free product recovery trenches, will be covered with a minimum of two feet of clean fill to ensure that VAP generic direct-contact standards within the zero to two foot point of compliance will be met across the entire site. *what type of fill? how much?*

- Future land use will be restricted via an institutional control (i.e., activity and use limitation recorded with the Property deed) to commercial and/or industrial use only.

- Use of ground water on the Property will also be restricted via an institutional control, although this restriction is intended to address non-PCB related contamination. *The ground water currently meets UPUS for PCBs.*

- * • A Property-Specific Risk Assessment will be performed with the objective of demonstrating that any residual petroleum product, whether containing PCBs or not, will not pose a risk to human health or the environment. The risk assessment is anticipated to provide quantitative support to the qualitative *weight of evidence* position that there is no adverse impact from the PCB contamination based on the following supporting information:

1) The free product containing the PCBs will have been removed from the site to the extent practical;

2) Historically and currently, the soil and ground water in the Lagoon 7 area meet generic standards for PCBs under the VAP;

- 3) The free product historically has been confined to the lagoon area as evidenced by surrounding ground water monitoring wells;
- 4) Ground water is not used for potable purposes in the immediate vicinity of the site;
- 5) A ground water use restriction will be placed on the Property that will prohibit the use of ground water for potable purposes;
- 6) Lagoon 7 and the immediate surrounding area will be covered with a minimum of two feet of clean fill;
- 7) A deed restriction prohibiting the construction of structures on the Lagoon 7 area (except for slab-on-grade construction) has already been placed and will be maintained on the Property. This land use restriction will effectively eliminate any future direct contact by humans with the subsurface in the vicinity of Lagoon 7.

* The goal of the assessment and remediation project work being conducted on the Property is to demonstrate that applicable and appropriate TSCA (as it pertains to the PCB contamination) and VAP standards have been met so that the results can be compiled into a comprehensive NFA document in accordance with the VAP rules and requirements and a Covenant Not To Sue can be issued for the Property by the Ohio EPA.

Remediation Roles and Responsibilities

This project is being conducted under the Ohio EPA Voluntary Action Program (VAP) and, therefore, remediation activities will be performed under the direction of the VAP Certified Professional. Responsibilities for work elements will be divided between the Environmental Consultant and the Remediation Contractor as described below:

Environmental Consultant – Brownfield Restoration Group, LLC (BRG) is the Environmental Consultant for this project. The Environmental Consultant will provide the Certified Professional's supervision and an environmental geologist to supervise on-site remedial activities with respect to technical project objectives. The locations and limits of excavation for the oil recovery trenches were determined by the Environmental Consultant. As necessary, confirmatory soil and ground water sampling and analysis for the purpose of demonstrating compliance with VAP standards will be directed by the Environmental Consultant.

Remediation Contractor – The Remediation Contractor will be responsible for supplying all equipment, labor and material to complete the scope of work described herein. The Remediation Contractor will be responsible for the health and safety of all of its workers, including preparation of a Health and Safety Plan. Securing the work site with respect to health and safety, including but not limited to the placement of fencing and warning signs around excavation areas, will be the responsibility of the Remediation Contractor. The Remediation Contractor will also be responsible for securing and maintaining any necessary permits for conducting the remedial actions including (as may be required) permits for excavation, water discharge, transportation of wastes, and waste disposal. Any sampling and analysis necessary to obtain or maintain permits, including any waste characterization for disposal purposes, will be the responsibility of the Remediation Contractor.

Scope of Remediation Contractor Work

The Remediation Contractor's scope of work will include implementing the "Active Remediation" on this project, which consists of the excavation, transportation, disposal of contaminated soil and the removal, transportation, and disposal of free product from the oil recovery trenches at the direction of the Environmental Consultant. The Remediation Contractor will be responsible for providing all labor, material, equipment, and any permits that may be required to perform the following tasks:

- Prepare and implement a site-specific Health & Safety Plan. The Remediation Contractor will be responsible for the health and safety of its workers and for securing the work site with respect to health and safety matters (e.g., providing a security fence and warnings signs around all open excavations).
- Excavate the oil recovery trenches in the Lagoon 7 area as directed by the Environmental Consultant. *Note: this work has already been completed.*
- Excavations for the oil recovery trenches will extend to a depth of approximately one foot below the ground water table (approximately 18 to 20 feet below grade). *Note: this work has already been completed.*
- Load, transport, and dispose of any soil excavated during the oil recovery trenching that is determined to exceed VAP standards for use as backfill after oil recovery operations are completed. Such soil must be disposed of at a facility licensed and permitted to accept soil of this nature.
- Replace any excavated soil meeting VAP standards into the oil recovery trenches upon completion of the oil recovery operations.

- Transport and place clean fill into the excavation sufficient to return the excavation to the surrounding grade and a minimum of two feet above existing grade.
- Provide an affidavit certifying the source of the fill and that the fill is clean with respect to environmental contamination.
- Provide a vacuum-truck and/or pumps with operator to skim free product from the open oil recovery trenches as directed by the Environmental Consultant and transport and dispose of product fluids at a facility licensed and permitted to accept PCB-contaminated petroleum products.
- Conduct any sampling and analysis necessary to properly characterize the excavated material and/or product fluids for acceptance at a disposal facility.
- Provide manifests and weigh tickets for each load of excavated material and/or product fluids removed from the site.
- The source of clean fill to be used at the site is subject to approval by the Environmental Consultant. If there is any reason to believe, at the sole discretion of the Environmental Consultant, that the source of clean fill may have been impacted by petroleum or hazardous substances, the source may be rejected for use on this project.

The Environmental Consultant will direct and document the remedial activities, described above, to be performed by the Remediation Contractor. Although the Remediation Contractor and the Environmental Consultant will coordinate activities, the Environmental Consultant (i.e., the VAP Certified Professional) will ultimately be responsible for certifying that standards have been met and that the objectives of this work plan have been satisfactorily achieved.

PCB-Contaminated Soil Disposal

If soil excavated from the oil recovery trenches is found to exceed VAP standards, the contaminated soil will be transported to a disposal facility properly licensed to accept waste of this nature. Non-hazardous soil containing metals, petroleum compounds, and PCBs less than 50 ppm will be disposed of at Countywide landfill, located in East Sparta, Ohio, or American Landfill, located in Waynesburg, Ohio. Soils containing PCB concentrations in excess of 50 ppm (if any) will be transported and disposed of at EQ-Wayne Disposal, located in Belleville, Michigan. The Remediation Contractor will provide a complete waste manifest for each load of contaminated soil removed from the site.

PCB-Contaminated Fluid Disposal (Oil and Ground water)

Fluids evacuated from the oil recovery trenches (oil, water, PCBs) will be transported to a disposal facility properly licensed to accept the waste. Removed PCB oil and any ground water containing PCB concentrations in excess of 50 ppm will be transported and disposed of at Clean Harbors in Deer Park, Texas. Removed ground water determined to contain less than 50 ppm of PCBs will be transported and disposed of at Clean Harbors in Spring Grove, Ohio. The Remediation Contractor will provide a complete waste manifest for each load of contaminated fluids removed from the site.

Contact Information

For additional information or questions regarding the technical aspects of this project, please contact the Environmental Consultant at the following address:

Mr. Jim Smith
Brownfield Restoration Group, LLC
1000 South Cleveland-Massillon Road
Akron, Ohio 44333
Phone: (330) 668-4600
Fax: (330) 668-8464
Email: jimsmith@brgroupllc.com

The Remediation Contractor that will be implementing the soil remediation and free product disposal operations can be contacted at the following address:

Mr. Bill Jeffries
Groffre Investments
5211 Louisville Street NE
Louisville, Ohio 44641
Phone: (330) 454-6103
Fax: (330) 454-6140
Email: bill@josephajeffries.com

The current owner of the Property can be contacted at the following address:

Mr. Brad Ashford
Chesapeake Land Development Company
PO Box 54853
Oklahoma City, OK 73154-1853
Phone: (405) 935-4988
Email: brad.ashford@chk.com

Attachments:

Attachment A: Figures

Attachment B: Tables

Attachment C: Boring Logs/Well Construction Diagrams & UVOST Logs

Attachment D: Laboratory Analytical Reports, Chain-of-Custody Forms and Affidavits

Attachment E: Access Agreement



RISK-BASED CLEANUP AND DISPOSAL APPROVAL § 761.61(c) CHECKLIST

In accordance with the requirements of 40 CFR Part 761, the following information is provided:

I. Risk-Based Cleanup and Disposal Request to EPA with the Following:

- a. *Cover letter stating purpose of the submission and signed by the Site owner or operator, or by the party responsible for conducting the cleanup, such as a former Site owner.*

See attached cover letter and "Certification Statement" signed by Mr. Bill Jeffries, a representative of Groffre Investments (former Site owner and party undertaking PCB cleanup activities).

- b. *A plan which includes the following information:*

- i. *Site background and history. This should include a discussion of past activities (e.g. use of PCBs and/or PCB equipment, storage, manufacturing, etc.), site ownership, and current or proposed site uses. This section should also include information on any cleanups/remediations that have occurred at the Site.*

Refer to the Background section of the work plan (pg. 1-2) for a discussion of past activities, site ownership, and proposed site uses. No previous remedial activities have occurred at the Site other than the backfilling of the lagoons in the mid-1980s. No records of the lagoon closures have been found.

- ii. *The nature of the contamination, including the kinds of materials contaminated (§ 761.61(a)(3)(i)(A))*

The PCB contamination is limited to the surface of the ground water table in the form of floating oil product within a defined area of the site. Refer to the Site Assessment and Characterization section of the Work Plan (page 2) for further information.

- iii. *A summary of the standard operating procedures (SOPs) employed during characterization of the Site, including a table and/or cleanup site map showing PCB concentrations measured in pre-cleanup characterization samples. The SOPs must include information on the sample collections procedures and extraction/analytical procedures. Copies of the laboratory analytical reports should be provided to*

document the extraction/analytical dates and methods and laboratory QC (§ 761.61(a)(3)(i)(B)).

Soil core samples collected at each boring location were split into two-foot intervals corresponding to depth, and portions of the samples were field screened using a MiniRae[®] photo-ionization detector (PID) for volatile organics. Two soil samples from each borehole location, the near-surface soil sample (i.e., 0 to 2 feet) and the sample exhibiting the highest measured PID reading, were submitted for laboratory analysis. Copies of boring logs describing subsurface conditions at each borehole location are provided in Attachment A.

The ground water monitoring wells were sampled using minimal drawdown, low-flow sampling methods. Physical and chemical properties, including pH, specific conductivity, dissolved oxygen (DO), oxygen-reduction potential (ORP), temperature and turbidity, were monitored during well purging using a calibrated Horiba[®] U-52 water-quality analyzer. Ground water samples were collected after the water quality values were generally within ten percent of the previous reading over three monitoring periods of five minutes each.

Extraction/analytical procedures employed by the laboratory are documented within the analytical reports provided on CD in Attachment D. Analyses for the assessment and characterization of the site were performed by Test America of North Canton, Ohio – a VAP certified laboratory (CL0024).

Refer to *Table 1: Summary of Soil Analytical Results – PCB Remediation Area* and *Table 2: Summary of Ground Water and Oil Product Analytical Data – PCB Remediation Area* located in Attachment B for a summary of pre-cleanup characterization sample analytical results. *Figure 3 – Soil PCB Concentrations and Analytical Results Above VAP Direct Contact Standards Near PCB Remediation Area* and *Figure 4 – Ground Water PCB Concentrations and Analytical Results Above UPUS Near PCB Remediation Area* also depict pre-cleanup characterization results. Supporting site figures are located in Attachment A.

- iv. *A Site map showing the PCB sampling locations cross-referenced to the sample identification numbers provided as part of the characterization information. The extent of the identified PCB contaminated area(s) must be clearly identified. (§ 761.61(a)(3)(i)(C)).*

Refer to Attachment A, *Figure 3 – Soil PCB Concentrations and Analytical Results Above VAP Direct Contact Standards Near PCB*

Remediation Area and Figure 4 – Ground Water PCB Concentrations and Analytical Results Above UPUS Near PCB Remediation Area.

- v. *A cleanup plan for the Site, including the proposed disposal technology and approach, and a cleanup schedule. The plan must include contingency plans in the event that higher PCB concentrations and/or a wider distribution of PCBs are identified during the cleanup (§ 761.61(a)(3)(i)(D)).*

The cleanup plan for this project is described in work plan text under the PCB Cleanup Standard section (p. 3-6). Early stages of the clean-up effort are currently underway. Trenches exposing the oil product in the target area were excavated between September 26 and October 1, 2012. The first oil product skimming and removal event began on November 20, 2012. Waste disposal facility information is provided in the work plan text on pages 8 and 9. Oil re-accumulation will be monitored and evacuation events will be repeated until a product layer no longer redevelops on the exposed ground water table or is too thin to be practically recovered with this method.

Because the limits of the target PCB remediation area were pre-characterized during assessment activities (refer to p. 2-3), there is no reason to expect a wider distribution, or higher concentration of PCB contamination to be encountered during clean-up activities. However, the same active remedy described within the work plan will be implemented in the event additional impact is discovered.

- vi. *Evaluation of PCB Cleanup Alternatives – An evaluation of PCB cleanup alternatives must be submitted for the following:*

- *Sites that may not be cleaned up under the self-implementing procedures (see § 761.61 (a)(1)(i)), or*
- *Sites where the proposed cleanup involves leaving PCBs at concentrations greater than the cleanup criteria established under § 761.61(a).*

The evaluation should include an alternative to achieve the prescriptive cleanup standard(s) under § 761.61(a). The evaluation should clearly state the reasons why the provisions available under § 761.61(a) cannot be implemented.

An evaluation of PCB cleanup alternatives was not conducted for this project. Active product removal is determined to be the most effective method for removal of PCB contamination from the environment. PCB contaminated oil product will be removed from the site to the extent practical and residual PCB concentrations left at the site will be evaluated through a property-specific risk assessment. Refer to the PCB Cleanup Standard section of the work plan (p. 3-6) for details on the cleanup plan for this project.

- vii. *If a cleanup will involve the use of an engineered cap, the cap design specifications and a cross-section showing the design should be provided. Please insure that it is clear where the engineered cap will be used. Please note: the use of an engineered cap will require a deed notations documenting this fact and the limitations on the use of the Site. Financial assurance¹ and a long-term monitoring and maintenance plan for the cap will be required. In addition, long-term groundwater monitoring may be required to document no migration of PCBs from the Site (§ 761.61(a)(7)).*

An engineered cap is not be required for this site to achieve compliance with applicable PCB standards under TSCA or the Ohio EPA VAP. However, the area of PCB remediation will be covered with a two-foot layer of clean fill to address the soil direct contact pathway with regard to other chemicals of concern (i.e., not PCBs).

- viii. *If a cleanup will involve encapsulation of PCBs on a building or structure, please provide the MSDS of the proposed encapsulant and a discussion of the effectiveness of this product for encapsulation of PCBs based on the Site and the receptors at the Site. Please note: the use of an encapsulant under § 761.61(c) will require a deed notation documenting this fact and the limitations on the use of the Site. Financial assurance¹ and a long-term monitoring and maintenance plan for the encapsulant(s) will be required.*

Not applicable - the cleanup will not involve encapsulation of PCBs on a building or structure.

- ix. *A written certification, signed by: 1) the owner of the property where the cleanup is located, and 2) the party conducting the cleanup, that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to access or characterize the PCB contamination at the*

¹ For certain public entities (city, towns, and municipalities) documentation of financial assurance generally will not be required.

cleanup site, are on file at the location designated in the certificate, and are available for EPA inspection (§ 761.61(a)(3)(i)(E)).

Please refer to the "Certification Statement" page of this document for the written certification signed by: 1) the owner of the property where the cleanup is located, and 2) the party conducting the cleanup, that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to access or characterize the PCB contamination at the cleanup site, are on file at the location designated in the certificate, and are available for EPA inspection (§ 761.61(a)(3)(i)(E)).

- x. *Subpart Q alternative method: If an alternative method of extraction and/or analysis is/will be used, the certification shall include a statement to this fact and that a comparison study which meets or exceeds the requirements of Subpart Q has been completed prior to the verification sampling. In the event that the alternative extraction and/or analytical methods was previously validated under Subpart Q using materials from other projects, the laboratory must provide a certification that the sample types used during that comparison study are similar to (e.g., % organic content, grain size, etc) the sample types that will be cleanup up under the Notification. A copy of the Subpart Q comparison study should be included in the Notification (§ 761.61(a)(3)(i)(E)).*

Not Applicable - A Subpart Q alternative method of extraction and/or analysis was not implemented for this project.

- xi. *QA/QC plan for documenting that the cleanup levels have been achieved (e.g. confirmatory sampling/analysis QA/QC plan should at a minimum include information on the types and numbers of samples; extraction and analytical methods; MS/MSDs (both frequency and acceptance criteria), etc. The QA/QC plan should also discuss data validation.*

A QA/QC plan for documenting that the cleanup levels have been achieved was not prepared for this project because the cleanup is based on visual confirmation that the oil product containing the PCBs has been removed from the ground water table.

- xii. *Human Health Risk Assessment and Ecological Risk Assessment. A Human Health Risk Assessment (HHRA) may be required to support a Risk-Based Disposal Request under § 761.61(c) where PCB concentrations above the prescriptive PCB standards at § 761.61(a) are left in-place². The HHRA should evaluate site exposures and provide a*

² A determination on the requirement for submittal of an HHRA will be determined based on the site and the remedial approach.

justification as to the controls proposed to address these exposures. An Ecological Risk Assessment will be required in the event that wetlands, water bodies, sediments, or other similar matrices are impacted with PCBs regulated under 40 CFR Part 761.

A Human Health Risk Assessment was not prepared for this project given that no known PCB concentrations above prescriptive PCB standards will be left in a place. An Ecological Risk Assessment was not prepared for this project since no wetlands, water bodies, sediments, or other similar matrices are known to be impacted with PCBs regulated under 40 CFR Part 761. Following cleanup, a Property-Specific Risk Assessment (PSRA) will be performed to satisfy the requirement of the Ohio EPA VAP. Refer to the PCB Cleanup Standard section of the work plan (p. 5-6)

- xiii. *In the event that the party conducting the cleanup is not the Site owner, EPA will require documentation that the party conducting the cleanup legally has the authority to access the Site and to conduct the proposed PCB cleanup activities. This documentation for example may be in the form of a Site Access Agreement stating this fact or perhaps in a lease agreement or a property transfer agreement.*

Please refer to Attachment E for a copy of the access agreement permitting the City of Louisville access to the site for the purposed of conducting environmental activities related to the Clean Ohio grant received for this property.

ATTACHMENT B

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

**Former J&L Steel Lagoons
Louisville, Stark County, Ohio**

Chemical of Concern	B-104 0'-2'	B-104 4'-6'	B-108 0'-2'	B-108 8'-10'	B-109 0'-2'	B-109 10'-12'	Representative Concentration		Generic Direct Contact Standards	
<i>Date Sampled:</i>	01/23/2012	01/24/2012	01/25/2012	01/25/2012	01/25/2012	01/25/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
VOCs (in mg/kg)										
Acetone	<0.032	<0.033	<0.022	<0.26	<0.023	<0.043	0.11	0	100,000	100,000
Isopropylbenzene	<0.0080	<0.0083	<0.0056	<0.064	<0.0057	<0.011	0	0.38	260	260
4-Isopropyltoluene	<0.0080	<0.0083	<0.0056	0.39	<0.0057	<0.011	0	0.39	573	573
Methylene Chloride	<0.0080	0.01	<0.0056	0.065	0.006	<0.011	0.006	0.065	570	1,500
Naphthalene	<0.0080	<0.0083	<0.0056	0.35	<0.0057	<0.011	0	0.35	150	84
n-Butylbenzene	<0.0080	<0.0083	<0.0056	0.5	<0.0057	<0.011	0	0.5	178	178
N-Propylbenzene	<0.0080	<0.0083	<0.0056	0.23	<0.0057	<0.011	0	0.23	236	236
sec-Butylbenzene	<0.0080	<0.0083	<0.0056	0.2	<0.0057	<0.011	0	0.2	764	764
Toluene	<0.0080	<0.0083	<0.0056	<0.064	<0.0057	<0.011	0	0	520	520
1,2,4-Trimethylbenzene	<0.0080	<0.0083	<0.0056	2.1	<0.0057	<0.011	0	2.1	120	35
1,3,5-Trimethylbenzene	<0.0080	<0.0083	<0.0056	0.8	<0.0057	<0.011	0	0.8	95	200
SVOCs (in mg/kg)										
2-Methylnaphthalene	<0.011	0.027	<0.0075	2.7	<0.0076	0.015	0	2.7	3,700	2,800
Acenaphthene	<0.011	<0.011	<0.0075	<0.026	<0.0076	<0.014	0	0	56,000	440,000
Anthracene	<0.011	<0.011	<0.0075	<0.026	<0.0076	<0.014	0	0	280,000	1,000,000
Benzo[a]anthracene	0.015	<0.011	<0.0075	<0.026	0.036	<0.014	0.036	0	76	680
Benzo[b]fluoranthene	0.022	<0.011	<0.0075	<0.026	0.054	<0.014	0.054	0	77	690
Benzo[ghi]perylene	<0.011	<0.011	<0.0075	<0.026	0.031	0.088	0.031	0.088	28,000	220,000
Benzo[k]fluoranthene	<0.011	<0.011	<0.0075	<0.026	0.023	<0.014	0.023	0	770	6,900
Benzo-a-pyrene	0.014	<0.011	<0.0075	<0.026	0.043	0.035	0.043	0.035	7.7	69
Bis(2-ethylhexyl) phthalate	0.16	<0.082	<0.056	<0.19	<0.057	0.12	0.16	0.12	190	190
Chrysene	0.017	<0.011	<0.0075	<0.026	0.035	<0.014	0.035	0	7,600	69,000
Fluoranthene	0.025	<0.011	<0.0075	<0.026	0.033	0.026	0.033	0.026	37,000	290,000
Fluorene	<0.011	<0.011	<0.0075	0.27	<0.0076	<0.014	0	0.27	37,000	290,000
Indeno[1,2,3-cd]pyrene	<0.011	<0.011	<0.0075	<0.026	0.023	<0.014	0.023	0	77	690
Naphthalene	<0.011	0.019	<0.0075	<0.026	<0.0076	0.015	0	0.019	150	84
Phenanthrene	<0.011	<0.011	<0.0075	0.61	0.014	0.024	0.014	0.61	280,000	2,200,000
Pyrene	0.021	<0.011	<0.0075	0.14	0.029	0.034	0.029	0.14	28,000	220,000

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

Former J&L Steel Lagoons
Louisville, Stark County, Ohio

Chemical of Concern	B-104 0'-2'	B-104 4'-6'	B-108 0'-2'	B-108 8'-10'	B-109 0'-2'	B-109 10'-12'	Representative Concentration		Generic Direct Contact Standards	
<i>Date Sampled:</i>	01/23/2012	01/24/2012	01/25/2012	01/25/2012	01/25/2012	01/25/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
TPH (in mg/kg)										
TPH C6-C12	<0.16	<0.17	<0.11	120	0.19	2.1	7.7	3200	1,000	1,000
TPH C10-C20	65	120	20	3900	<19	<36	1900	6000	2,000	2,000
TPH C20-C34	230	110	48	1000	62	150	2100	11000	5,000	5,000
Metals (in mg/kg)										
Aluminum	17000	7800	6100	2300	6100	8600	21000	37000		
Arsenic	18	36	13	22	11	20	85	36	82	420
Barium	130	<150	46	<340	<86	<190	220	270	370,000	120,000
Beryllium	0.75	<3.7	<0.52	<8.5	<2.1	<4.7	1	1.4	5,100	3,100
Cadmium	<0.23	<1.5	<0.21	<3.4	<0.86	<1.9	6.4	0.84	2,300	1,600
Chromium	(940)	(15,000)	12	(22,000)	(3,300)	(21,000)	1100	750	7,900	13,000
Chromium Trivalent	937	14970	nt	21,930	3299	20966	11850	21930	1,000,000	1,000,000
Chromium Hexavalent	2.8	30	nt	70	1.2	34	150	77	7,900	13,000
Cobalt	20	99	6.6	150	29	130	65	150	23,000	4,000
Lead	26	18	13	20	11	45	91	58	1,800	750
Nickel	570	6000	17	10,000	1700	7400	5800	14000	44,000	21,000
Selenium	1.2	<3.7	0.92	<8.5	<2.1	<4.7	6.9	1.5	15,000	9,700
Thallium	4.1	<7.4	<1.0	<17	<4.3	<9.4	4.1	0	230	1,600
Vanadium	38	65	15	88	27	61	60	88	26,000	17,000
Zinc	110	110	77	210	71	270	220	280	880,000	580,000
PCBs (in mg/kg)										
PCB 1016	<0.053	<0.054	<0.037	<0.13	<0.038	<0.070	0	0		
PCB 1221	<0.053	<0.054	<0.037	<0.13	<0.038	<0.070	0	0		
PCB 1232	<0.053	<0.054	<0.037	<0.13	<0.038	<0.070	0	0		
PCB 1242	<0.053	<0.054	<0.037	<0.13	<0.038	<0.070	0	1.1		
PCB 1248	<0.053	<0.054	<0.037	<0.13	<0.038	<0.070	0.058	0.057		
PCB 1254	<0.053	<0.054	<0.037	<0.13	<0.038	<0.070	0	0.26		
PCB 1260	<0.053	<0.054	<0.037	<0.13	<0.038	<0.070	0.076	0.085		
Total PCBs	0	0	0	0	0	0	0.076	1.1	18	42

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

Former J&L Steel Lagoons
Louisville, Stark County, Ohio

Chemical of Concern	B-110 0'-2'	B-110 12'-14'	B-111 0'-2'	B-111 4'-6'	B-116 0'-2'	B-116 6'-8'	Representative Concentration		Generic Direct Contact Standards	
	<i>Date Sampled:</i> 01/25/2012	01/25/2012	01/25/2012	01/25/2012	03/13/2012	03/13/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
VOCs (in mg/kg)										
Acetone	<0.025	<1.1	<0.023	<0.034	<0.027	<0.027	0.11	0	100,000	100,000
Isopropylbenzene	<0.0063	<0.28	<0.0057	<0.0085	<0.0067	<0.0067	0	0.38	260	260
4-Isopropyltoluene	<0.0063	<0.28	<0.0057	<0.0085	<0.0067	<0.0067	0	0.39	573	573
Methylene Chloride	0.0069	<0.28	0.0057	0.011	<0.0067	<0.0067	0.006	0.065	570	1,500
Naphthalene	<0.0063	<0.28	<0.0057	<0.0085	<0.0067	<0.0067	0	0.35	150	84
n-Butylbenzene	<0.0063	<0.28	<0.0057	<0.0085	<0.0067	<0.0067	0	0.5	178	178
N-Propylbenzene	<0.0063	<0.28	<0.0057	<0.0085	<0.0067	<0.0067	0	0.23	236	236
sec-Butylbenzene	<0.0063	<0.28	<0.0057	<0.0085	<0.0067	<0.0067	0	0.2	764	764
Toluene	<0.0063	<0.28	<0.0057	<0.0085	<0.0067	<0.0067	0	0	520	520
1,2,4-Trimethylbenzene	<0.0063	<0.28	<0.0057	<0.0085	<0.0067	<0.0067	0	2.1	120	35
1,3,5-Trimethylbenzene	<0.0063	<0.28	<0.0057	<0.0085	<0.0067	<0.0067	0	0.8	95	200
SVOCs (in mg/kg)										
2-Methylnaphthalene	<0.0084	<0.37	<0.0076	0.019	<0.0089	<0.0090	0	2.7	3,700	2,800
Acenaphthene	<0.0084	<0.37	<0.0076	<0.011	<0.0089	<0.0090	0	0	56,000	440,000
Anthracene	<0.0084	<0.37	<0.0076	0.036	<0.0089	<0.0090	0	0	280,000	1,000,000
Benzo[a]anthracene	<0.0084	<0.37	<0.0076	0.11	<0.0089	0.013	0.036	0	76	680
Benzo[b]fluoranthene	<0.0084	<0.37	<0.0076	0.14	<0.0089	<0.0090	0.054	0	77	690
Benzo[ghi]perylene	<0.0084	<0.37	<0.0076	0.073	<0.0089	0.015	0.031	0.088	28,000	220,000
Benzo[k]fluoranthene	<0.0084	<0.37	<0.0076	0.073	<0.0089	<0.0090	0.023	0	770	6,900
Benzo-a-pyrene	<0.0084	<0.37	<0.0076	0.095	<0.0089	0.013	0.043	0.035	7.7	69
Bis(2-ethylhexyl) phthalate	<0.063	<2.8	<0.057	<0.085	<0.067	<0.067	0.16	0.12	190	190
Chrysene	<0.0084	<0.37	<0.0076	0.11	<0.0089	0.024	0.035	0	7,600	69,000
Fluoranthene	<0.0084	<0.37	<0.0076	0.28	<0.0089	<0.0090	0.033	0.026	37,000	290,000
Fluorene	<0.0084	<0.37	<0.0076	0.02	<0.0089	<0.0090	0	0.27	37,000	290,000
Indeno[1,2,3-cd]pyrene	<0.0084	<0.37	<0.0076	0.06	<0.0089	<0.0090	0.023	0	77	690
Naphthalene	<0.0084	<0.37	<0.0076	<0.011	<0.0089	<0.0090	0	0.019	150	84
Phenanthrene	<0.0084	<0.37	<0.0076	0.22	<0.0089	0.033	0.014	0.61	280,000	2,200,000
Pyrene	<0.0084	<0.37	<0.0076	0.22	<0.0089	0.022	0.029	0.14	28,000	220,000

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

**Former J&L Steel Lagoons
Louisville, Stark County, Ohio**

Chemical of Concern	B-110 0'-2'	B-110 12'-14'	B-111 0'-2'	B-111 4'-6'	B-116 0'-2'	B-116 6'-8'	Representative Concentration		Generic Direct Contact Standards	
<i>Date Sampled:</i>	01/25/2012	01/25/2012	01/25/2012	01/25/2012	03/13/2012	03/13/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
TPH (in mg/kg)										
TPH C6-C12	<0.13	300	<0.11	<0.17	<0.13	<0.13	7.7	3200	1,000	1,000
TPH C10-C20	<21	5100	<19	<28	<22	<22	1900	6000	2,000	2,000
TPH C20-C34	34	2100	30	110	<22	<22	2100	11000	5,000	5,000
Metals (in mg/kg)										
Aluminum	9500	2700	3400	13000	14000	8200	21000	37000		
Arsenic	85	8	17	18	12	3	85	36	82	420
Barium	54	22	27	<170	210	130	220	270	370,000	120,000
Beryllium	<0.62	<0.48	<0.50	<4.3	1	0.7	1	1.4	5,100	3,100
Cadmium	<0.25	<0.19	<0.20	<1.7	1.2	0.45	6.4	0.84	2,300	1,600
Chromium	(1,100)	14	14	(15,000)	69	12	1100	750	7,900	13,000
Chromium Trivalent	1098	nt	nt	14923	nt	nt	11850	21930	1,000,000	1,000,000
Chromium Hexavalent	2	nt	nt	77	nt	nt	150	77	7,900	13,000
Cobalt	20	<4.8	6.5	90	7.1	8.1	65	150	23,000	4,000
Lead	39	11	9.5	56	25	14	91	58	1,800	750
Nickel	560	16	19	5300	47	19	5800	14000	44,000	21,000
Selenium	2.4	0.77	<0.50	<4.3	1.4	0.82	6.9	1.5	15,000	9,700
Thallium	<1.2	<0.96	<1.0	<8.5	<1.1	<1.3	4.1	0	230	1,600
Vanadium	24	7.8	9.2	60	26	24	60	88	26,000	17,000
Zinc	92	57	64	280	110	87	220	280	880,000	580,000
PCBs (in mg/kg)										
PCB 1016	<0.042	<0.73	<0.037	<0.056	<0.044	<0.045	0	0		
PCB 1221	<0.042	<0.73	<0.037	<0.056	<0.044	<0.045	0	0		
PCB 1232	<0.042	<0.73	<0.037	<0.056	<0.044	<0.045	0	0		
PCB 1242	<0.042	1.1	<0.037	<0.056	<0.044	<0.045	0	1.1		
PCB 1248	<0.042	<0.73	<0.037	<0.056	<0.044	<0.045	0.058	0.057		
PCB 1254	<0.042	<0.73	<0.037	<0.056	<0.044	<0.045	0	0.26		
PCB 1260	<0.042	<0.73	<0.037	<0.056	<0.044	<0.045	0.076	0.085		
Total PCBs	0	1.1	0	0	0	0	0.076	1.1	18	42

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

**Former J&L Steel Lagoons
Louisville, Stark County, Ohio**

Chemical of Concern	B-117 0'-2'	B-117 6'-8'	B-118 0'-2'	B-118 14'-16'	B-121 0'-2'	B-121 8'-10'	Representative Concentration		Generic Direct Contact Standards	
	<i>Date Sampled:</i> 03/13/2012	03/13/2012	03/13/2012	03/13/2012	3/14/2012	3/14/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
VOCs (in mg/kg)										
Acetone	<0.026	0.38	<0.024	<0.027	<0.026	<0.023	0.11	0	100,000	100,000
Isopropylbenzene	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0	0.38	260	260
4-Isopropyltoluene	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0	0.39	573	573
Methylene Chloride	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0.006	0.065	570	1,500
Naphthalene	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0	0.35	150	84
n-Butylbenzene	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0	0.5	178	178
N-Propylbenzene	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0	0.23	236	236
sec-Butylbenzene	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0	0.2	764	764
Toluene	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0	0	520	520
1,2,4-Trimethylbenzene	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0	2.1	120	35
1,3,5-Trimethylbenzene	<0.0064	<0.0084	<0.0059	<0.0067	<0.0065	<0.0057	0	0.8	95	200
SVOCs (in mg/kg)										
2-Methylnaphthalene	<0.0085	<0.011	<0.012	<0.0090	0.0088	<0.0076	0	2.7	3,700	2,800
Acenaphthene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0	0	56,000	440,000
Anthracene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0	0	280,000	1,000,000
Benzo[a]anthracene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0.036	0	76	680
Benzo[b]fluoranthene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	0.038	0.054	0	77	690
Benzo[ghi]perylene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0.031	0.088	28,000	220,000
Benzo[k]fluoranthene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0.023	0	770	6,900
Benzo-a-pyrene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0.043	0.035	7.7	69
Bis(2-ethylhexyl) phthalate	<0.064	<0.084	<0.093	<0.067	<0.065	<0.057	0.16	0.12	190	190
Chrysene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0.035	0	7,600	69,000
Fluoranthene	<0.0085	<0.011	0.016	<0.0090	0.014	<0.0076	0.033	0.026	37,000	290,000
Fluorene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0	0.27	37,000	290,000
Indeno[1,2,3-cd]pyrene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0.023	0	77	690
Naphthalene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0	0.019	150	84
Phenanthrene	<0.0085	<0.011	<0.012	<0.0090	<0.0086	<0.0076	0.014	0.61	280,000	2,200,000
Pyrene	<0.0085	<0.011	0.013	<0.0090	0.01	<0.0076	0.029	0.14	28,000	220,000

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

**Former J&L Steel Lagoons
Louisville, Stark County, Ohio**

Chemical of Concern	B-117 0'-2'	B-117 6'-8'	B-118 0'-2'	B-118 14'-16'	B-121 0'-2'	B-121 8'-10'	Representative Concentration		Generic Direct Contact Standards	
	<i>Date Sampled:</i> 03/13/2012	03/13/2012	03/13/2012	03/13/2012	3/14/2012	3/14/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
TPH (in mg/kg)										
TPH C6-C12	<0.13	<0.17	<0.12	<0.13	<0.13	<0.11	7.7	3200	1,000	1,000
TPH C10-C20	<21	<28	<20	<22	31	<19	1900	6000	2,000	2,000
TPH C20-C34	<21	64	36	<22	130	<19	2100	11000	5,000	5,000
Metals (in mg/kg)										
Aluminum	8900	8600	8700	11000	10000	4600	21000	37000		
Arsenic	8.4	10	14	13	11	11	85	36	82	420
Barium	87	210	96	140	120	48	220	270	370,000	120,000
Beryllium	<0.55	<0.82	<0.52	0.72	<0.58	<0.48	1	1.4	5,100	3,100
Cadmium	0.24	0.84	0.4	0.59	0.57	0.34	6.4	0.84	2,300	1,600
Chromium	12	13	410	16	160	8.9	1100	750	7,900	13,000
Chromium Trivalent	nt	nt	nt	nt	nt	nt	11850	21930	1,000,000	1,000,000
Chromium Hexavalent	nt	nt	nt	nt	nt	nt	150	77	7,900	13,000
Cobalt	<5.5	9.3	7.9	7.6	13	6.3	65	150	23,000	4,000
Lead	9.9	18	13	14	26	10	91	58	1,800	750
Nickel	14	25	310	23	220	15	5800	14000	44,000	21,000
Selenium	<0.55	1.5	0.65	0.64	0.89	<0.48	6.9	1.5	15,000	9,700
Thallium	<1.1	<1.6	<1.0	<1.2	<1.2	<0.96	4.1	0	230	1,600
Vanadium	16	24	29	23	21	10	60	88	26,000	17,000
Zinc	58	110	58	100	87	75	220	280	880,000	580,000
PCBs (in mg/kg)										
PCB 1016	<0.042	<0.056	<0.055	<0.044	<0.043	<0.038	0	0		
PCB 1221	<0.042	<0.056	<0.055	<0.044	<0.043	<0.038	0	0		
PCB 1232	<0.042	<0.056	<0.055	<0.044	<0.043	<0.038	0	0		
PCB 1242	<0.042	<0.056	<0.055	<0.044	<0.043	<0.038	0	1.1		
PCB 1248	<0.042	<0.056	<0.055	<0.044	0.058	<0.038	0.058	0.057		
PCB 1254	<0.042	<0.056	<0.055	<0.044	<0.043	<0.038	0	0.26		
PCB 1260	<0.042	<0.056	<0.055	<0.044	<0.043	<0.038	0.076	0.085		
Total PCBs	0	0	0	0	0.058	0	0.076	1.1	18	42

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

Former J&L Steel Lagoons
Louisville, Stark County, Ohio

Chemical of Concern	B-122 0'-2'	B-122 4'-6'	B-123 0'-2'	B-123 4'-6'	B-124 0'-2'	B-124 4'-6'	Representative Concentration		Generic Direct Contact Standards	
	Date Sampled:	3/14/2012	3/14/2012	3/14/2012	3/14/2012	3/14/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
VOCs (in mg/kg)										
Acetone	<0.023	<0.023	<1.1	<5.8	<0.031	<0.042	0.11	0	100,000	100,000
Isopropylbenzene	<0.0059	<0.0056	<0.27	2.5	<0.0076	<0.011	0	0.38	260	260
4-Isopropyltoluene	<0.0059	<0.0056	<0.27	3.2	<0.0076	<0.011	0	0.39	573	573
Methylene Chloride	<0.0059	<0.0056	<0.27	<1.4	<0.0076	<0.011	0.006	0.065	570	1,500
Naphthalene	<0.0059	<0.0056	<0.27	4.6	<0.0076	<0.011	0	0.35	150	84
n-Butylbenzene	<0.0059	<0.0056	<0.27	5.2	<0.0076	<0.011	0	0.5	178	178
N-Propylbenzene	<0.0059	<0.0056	<0.27	6.1	<0.0076	<0.011	0	0.23	236	236
sec-Butylbenzene	<0.0059	<0.0056	<0.27	4.2	<0.0076	<0.011	0	0.2	764	764
Toluene	<0.0059	<0.0056	<0.27	<1.4	<0.0076	<0.011	0	0	520	520
1,2,4-Trimethylbenzene	<0.0059	<0.0056	0.98	39	<0.0076	<0.011	0	2.1	120	35
1,3,5-Trimethylbenzene	<0.0059	<0.0056	<0.27	11	<0.0076	<0.011	0	0.8	95	200
SVOCs (in mg/kg)										
2-Methylnaphthalene	<0.0078	<0.0075	0.91	2	<0.020	0.2	0	2.7	3,700	2,800
Acenaphthene	<0.0078	<0.0075	<0.17	1.6	<0.020	<0.14	0	0	56,000	440,000
Anthracene	<0.0078	<0.0075	<0.17	1.2	<0.020	0.41	0	0	280,000	1,000,000
Benzo[a]anthracene	<0.0078	<0.0075	<0.17	0.66	<0.020	<0.14	0.036	0	76	680
Benzo[b]fluoranthene	<0.0078	<0.0075	<0.17	0.45	<0.020	<0.14	0.054	0	77	690
Benzo[ghi]perylene	<0.0078	<0.0075	<0.17	<0.40	<0.020	<0.14	0.031	0.088	28,000	220,000
Benzo[k]fluoranthene	<0.0078	<0.0075	<0.17	<0.40	<0.020	<0.14	0.023	0	770	6,900
Benzo-a-pyrene	<0.0078	<0.0075	<0.17	<0.40	<0.020	<0.14	0.043	0.035	7.7	69
Bis(2-ethylhexyl) phthalate	<0.058	<0.056	<1.2	<3.0	<0.15	<1.1	0.16	0.12	190	190
Chrysene	<0.0078	<0.0075	<0.17	0.58	<0.020	<0.14	0.035	0	7,600	69,000
Fluoranthene	<0.0078	<0.0075	<0.17	3.9	<0.020	0.19	0.033	0.026	37,000	290,000
Fluorene	<0.0078	<0.0075	<0.17	1.9	<0.020	<0.14	0	0.27	37,000	290,000
Indeno[1,2,3-cd]pyrene	<0.0078	<0.0075	<0.17	<0.40	<0.020	<0.14	0.023	0	77	690
Naphthalene	<0.0078	<0.0075	0.37	2.6	<0.020	<0.14	0	0.019	150	84
Phenanthrene	<0.0078	<0.0075	<0.17	8.1	<0.020	0.42	0.014	0.61	280,000	2,200,000
Pyrene	<0.0078	<0.0075	<0.17	2.9	<0.020	<0.14	0.029	0.14	28,000	220,000

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

**Former J&L Steel Lagoons
Louisville, Stark County, Ohio**

Chemical of Concern	B-122 0'-2'	B-122 4'-6'	B-123 0'-2'	B-123 4'-6'	B-124 0'-2'	B-124 4'-6'	Representative Concentration		Generic Direct Contact Standards	
	Date Sampled: 3/14/2012	3/14/2012	3/14/2012	3/14/2012	3/14/2012	3/14/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
TPH (in mg/kg)										
TPH C6-C12	0.13	<0.11	7.7	3200	<0.15	<0.21	7.7	3200	1,000	1,000
TPH C10-C20	<20	<19	1900	1200	30	<35	1900	6000	2,000	2,000
TPH C20-C34	<20	<19	2100	2400	130	44	2100	11000	5,000	5,000
Metals (in mg/kg)										
Aluminum	6400	6100	8500	5300	13000	37000	21000	37000		
Arsenic	13	14	19	34	<75	8.3	85	36	82	420
Barium	56	51	84	<400	<1500	270	220	270	370,000	120,000
Beryllium	0.72	<0.50	<0.58	<10	<37	1.4	1	1.4	5,100	3,100
Cadmium	0.39	0.28	<1.2	<4.0	<15	<0.42	6.4	0.84	2,300	1,600
Chromium	29	12	(1000)	(2300)	(12000)	750	1100	750	7,900	13,000
Chromium Trivalent	nt	nt	1000	2300	11850	nt	11850	21930	1,000,000	1,000,000
Chromium Hexavalent	nt	nt	<1.0	<0.96	150	nt	150	77	7,900	13,000
Cobalt	7.6	8.6	25	<100	<370	16	65	150	23,000	4,000
Lead	12	13	86	36	27	29	91	58	1,800	750
Nickel	34	21	1100	5100	5100	460	5800	14000	44,000	21,000
Selenium	0.87	<0.50	<2.9	<10	<37	1.5	6.9	1.5	15,000	9,700
Thallium	<1.2	<1.0	<5.8	<20	<75	<2.1	4.1	0	230	1,600
Vanadium	19	14	31	<100	<370	66	60	88	26,000	17,000
Zinc	97	67	130	71	<150	130	220	280	880,000	580,000
PCBs (in mg/kg)										
PCB 1016	<0.039	<0.037	<0.041	<0.080	<0.051	<0.070	0	0		
PCB 1221	<0.039	<0.037	<0.041	<0.080	<0.051	<0.070	0	0		
PCB 1232	<0.039	<0.037	<0.041	<0.080	<0.051	<0.070	0	0		
PCB 1242	<0.039	<0.037	<0.041	<0.080	<0.051	<0.070	0	1.1		
PCB 1248	<0.039	<0.037	<0.041	<0.080	<0.051	<0.070	0.058	0.057		
PCB 1254	<0.039	<0.037	<0.041	<0.080	<0.051	<0.070	0	0.26		
PCB 1260	<0.039	<0.037	<0.041	<0.080	<0.051	<0.070	0.076	0.085		
Total PCBs	0	0	0	0	0	0	0.076	1.1	18	42

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

Former J&L Steel Lagoons
Louisville, Stark County, Ohio

Chemical of Concern	B-125 0'-2'	B-125 4'-6'	B-136 0'-2'	B-136 12'-14'	B-137 0'-2'	B-137 10'-12'	Representative Concentration		Generic Direct Contact Standards	
<i>Date Sampled:</i>	3/14/2012	3/14/2012	5/15/2012	5/15/2012	5/15/2012	5/15/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
VOCs (in mg/kg)										
Acetone	<0.026	0.076	<0.030	<0.022	<0.022	<0.22	0.11	0	100,000	100,000
Isopropylbenzene	<0.0065	<0.017	<0.0074	<0.0054	<0.0056	<0.056	0	0.38	260	260
4-Isopropyltoluene	<0.0065	<0.017	<0.0074	<0.0054	<0.0056	<0.056	0	0.39	573	573
Methylene Chloride	<0.0065	0.023	<0.0074	<0.0054	<0.0056	<0.056	0.006	0.065	570	1,500
Naphthalene	<0.0065	0.025	<0.0074	<0.0054	<0.0056	<0.056	0	0.35	150	84
n-Butylbenzene	<0.0065	<0.017	<0.0074	<0.0054	<0.0056	<0.056	0	0.5	178	178
N-Propylbenzene	<0.0065	<0.017	<0.0074	<0.0054	<0.0056	<0.056	0	0.23	236	236
sec-Butylbenzene	<0.0065	<0.017	<0.0074	<0.0054	<0.0056	0.23	0	0.2	764	764
Toluene	<0.0065	<0.017	<0.0074	<0.0054	<0.0056	<0.056	0	0	520	520
1,2,4-Trimethylbenzene	<0.0065	0.026	<0.0074	<0.0054	<0.0056	<0.056	0	2.1	120	35
1,3,5-Trimethylbenzene	<0.0065	<0.017	<0.0074	<0.0054	<0.0056	<0.056	0	0.8	95	200
SVOCs (in mg/kg)										
2-Methylnaphthalene	<0.034	<0.46	<0.010	<0.0072	0.017	<0.19	0	2.7	3,700	2,800
Acenaphthene	<0.034	<0.46	<0.010	<0.0072	<0.0075	<0.19	0	0	56,000	440,000
Anthracene	<0.034	<0.46	<0.010	<0.0072	0.013	<0.19	0	0	280,000	1,000,000
Benzo[a]anthracene	<0.034	<0.46	<0.010	<0.0072	0.036	<0.19	0.036	0	76	680
Benzo[b]fluoranthene	<0.034	<0.46	<0.010	<0.0072	0.057	<0.19	0.054	0	77	690
Benzo[ghi]perylene	<0.034	<0.46	<0.010	<0.0072	0.024	<0.19	0.031	0.088	28,000	220,000
Benzo[k]fluoranthene	<0.034	<0.46	<0.010	<0.0072	0.03	<0.19	0.023	0	770	6,900
Benzo-a-pyrene	<0.034	<0.46	<0.010	<0.0072	0.03	<0.19	0.043	0.035	7.7	69
Bis(2-ethylhexyl) phthalate	<0.26	<3.4	0.18	0.089	<0.057	<1.4	0.16	0.12	190	190
Chrysene	<0.034	<0.46	<0.010	<0.0072	0.041	<0.19	0.035	0	7,600	69,000
Fluoranthene	<0.034	<0.46	<0.010	<0.0072	0.068	<0.19	0.033	0.026	37,000	290,000
Fluorene	<0.034	<0.46	<0.010	0.016	<0.0075	0.49	0	0.27	37,000	290,000
Indeno[1,2,3-cd]pyrene	<0.034	<0.46	<0.010	<0.0072	0.018	<0.19	0.023	0	77	690
Naphthalene	<0.034	<0.46	<0.010	<0.0072	0.013	<0.19	0	0.019	150	84
Phenanthrene	<0.034	<0.46	<0.010	<0.0072	0.05	<0.19	0.014	0.61	280,000	2,200,000
Pyrene	<0.034	<0.46	<0.010	0.012	0.058	<0.19	0.029	0.14	28,000	220,000

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

Former J&L Steel Lagoons
Louisville, Stark County, Ohio

Chemical of Concern	B-125 0'-2'	B-125 4'-6'	B-136 0'-2'	B-136 12'-14'	B-137 0'-2'	B-137 10'-12'	Representative Concentration		Generic Direct Contact Standards	
<i>Date Sampled:</i>	3/14/2012	3/14/2012	5/15/2012	5/15/2012	5/15/2012	5/15/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
TPH (in mg/kg)										
TPH C6-C12	<0.13	150	<0.15	2.0	<0.11	280	7.7	3200	1,000	1,000
TPH C10-C20	<22	610	<25	220	<19	6000	1900	6000	2,000	2,000
TPH C20-C34	100	300	170	680	280	11000	2100	11000	5,000	5,000
Metals (in mg/kg)										
Aluminum	13000	6400	9000	3300	4600	2200	21000	37000		
Arsenic	16	20	15	12	21	6.7	85	36	82	420
Barium	84	50	110	36	61	<18	220	270	370,000	120,000
Beryllium	<0.63	<0.54	<0.68	<0.43	<0.55	<0.44	1	1.4	5,100	3,100
Cadmium	0.55	<1.1	0.54	<0.17	6.4	<0.18	6.4	0.84	2,300	1,600
Chromium	(1200)	(1800)	(12000)	15	1100	6.6	1100	750	7,900	13,000
Chromium Trivalent	1197.3	1800	nt	nt	nt	nt	11850	21930	1,000,000	1,000,000
Chromium Hexavalent	2.7	<1.1	nt	nt	nt	nt	150	77	7,900	13,000
Cobalt	18	70	65	5.6	34	<4.4	65	150	23,000	4,000
Lead	40	58	51	9.9	78	7.3	91	58	1,800	750
Nickel	730	3700	3900	16	2500	9.7	5800	14000	44,000	21,000
Selenium	<0.63	<2.7	<0.68	<0.43	<2.7	<0.44	6.9	1.5	15,000	9,700
Thallium	1.6	<5.4	<6.8	<0.87	<5.5	<0.88	4.1	0	230	1,600
Vanadium	35	31	40	8.7	<27	7.9	60	88	26,000	17,000
Zinc	130	120	220	71	160	49	220	280	880,000	580,000
PCBs (in mg/kg)										
PCB 1016	<0.043	<0.045	<0.049	<0.036	<0.037	<0.18	0	0		
PCB 1221	<0.043	<0.045	<0.049	<0.036	<0.037	<0.18	0	0		
PCB 1232	<0.043	<0.045	<0.049	<0.036	<0.037	<0.18	0	0		
PCB 1242	<0.043	<0.045	<0.049	0.12	<0.037	0.82	0	1.1		
PCB 1248	<0.043	0.057	<0.049	<0.036	<0.037	<0.18	0.058	0.057		
PCB 1254	<0.043	<0.045	<0.049	0.039	<0.037	0.26	0	0.26		
PCB 1260	<0.043	0.085	<0.049	<0.036	0.076	<0.18	0.076	0.085		
Total PCBs	0	0.142	0	0.159	0	1.08	0.076	1.1	18	42

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

Former J&L Steel Lagoons
Louisville, Stark County, Ohio

Chemical of Concern	B-139 0'-2'	B-139 8'-10'	B-165 0'-2'	B-165 8'-10'	B-170 0'-2'	B170 6'-8'	Representative Concentration		Generic Direct Contact Standards	
	Date Sampled: 5/15/2012	5/15/2012	7/6/2012	7/6/2012	9/26/2012	9/26/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
VOCs (in mg/kg)										
Acetone	<0.021	<0.23	0.11	<0.022	<0.037	<0.034	0.11	0	100,000	100,000
Isopropylbenzene	<0.0053	<0.057	<0.0058	<0.0054	<0.0092	<0.0086	0	0.38	260	260
4-Isopropyltoluene	<0.0053	<0.057	<0.0058	<0.0054	<0.0092	<0.0086	0	0.39	573	573
Methylene Chloride	<0.0053	<0.057	<0.0058	<0.0054	<0.0092	<0.0086	0.006	0.065	570	1,500
Naphthalene	<0.0053	<0.057	<0.0058	<0.0054	<0.0092	<0.0086	0	0.35	150	84
n-Butylbenzene	<0.0053	0.094	0.0061	<0.0054	<0.0092	<0.0086	0	0.5	178	178
N-Propylbenzene	<0.0053	<0.057	0.0072	<0.0054	<0.0092	<0.0086	0	0.23	236	236
sec-Butylbenzene	<0.0053	0.064	<0.0058	<0.0054	<0.0092	<0.0086	0	0.2	764	764
Toluene	<0.0053	<0.057	0.0064	<0.0054	<0.0092	<0.0086	0	0	520	520
1,2,4-Trimethylbenzene	<0.0053	<0.057	<0.0058	<0.0054	<0.0092	<0.0086	0	2.1	120	35
1,3,5-Trimethylbenzene	<0.0053	<0.057	<0.0058	<0.0054	<0.0092	<0.0086	0	0.8	95	200
SVOCs (in mg/kg)										
2-Methylnaphthalene	0.013	<0.19	<0.031	<0.0074	0.015	0.015	0	2.7	3,700	2,800
Acenaphthene	<0.0071	<0.19	<0.031	<0.0074	<0.012	<0.012	0	0	56,000	440,000
Anthracene	0.0081	<0.19	<0.031	<0.0074	0.015	<0.012	0	0	280,000	1,000,000
Benzo[a]anthracene	0.018	<0.19	0.073	<0.0074	0.021	0.016	0.036	0	76	680
Benzo[b]fluoranthene	0.021	<0.19	0.12	0.0076	0.028	0.026	0.054	0	77	690
Benzo[ghi]perylene	0.016	<0.19	0.047	0.008	0.022	0.019	0.031	0.088	28,000	220,000
Benzo[k]fluoranthene	0.013	<0.19	0.083	<0.0074	<0.012	0.014	0.023	0	770	6,900
Benzo-a-pyrene	0.022	<0.19	0.047	<0.0074	0.021	0.014	0.043	0.035	7.7	69
Bis(2-ethylhexyl) phthalate	0.067	<1.4	<0.23	<0.055	<0.092	<0.086	0.16	0.12	190	190
Chrysene	0.018	<0.19	0.098	0.0078	0.025	0.02	0.035	0	7,600	69,000
Fluoranthene	0.034	<0.19	0.098	<0.0074	0.032	0.032	0.033	0.026	37,000	290,000
Fluorene	0.0099	0.77	<0.031	<0.0074	0.013	<0.012	0	0.27	37,000	290,000
Indeno[1,2,3-cd]pyrene	0.014	<0.19	0.045	<0.0074	0.02	0.013	0.023	0	77	690
Naphthalene	0.01	<0.19	<0.031	<0.0074	0.013	0.012	0	0.019	150	84
Phenanthrene	0.022	<0.19	0.056	<0.0074	0.03	0.026	0.014	0.61	280,000	2,200,000
Pyrene	0.023	0.19	0.084	<0.0074	0.03	0.026	0.029	0.14	28,000	220,000

TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

Former J&L Steel Lagoons
Louisville, Stark County, Ohio

Chemical of Concern	B-139 0'-2'	B-139 8'-10'	B-165 0'-2'	B-165 8'-10'	B-170 0'-2'	B170 6'-8'	Representative Concentration		Generic Direct Contact Standards	
<i>Date Sampled:</i>	5/15/2012	5/15/2012	7/6/2012	7/6/2012	9/26/2012	9/26/2012	0 to 2 ft.	> 2 ft.	C/I	C/E
TPH (in mg/kg)										
TPH C6-C12	<0.11	160	2.3	<0.11	<0.18	<0.17	7.7	3200	1,000	1,000
TPH C10-C20	<18	4700	<97	<18	<31	<28	1900	6000	2,000	2,000
TPH C20-C34	100	9000	220	<18	<31	<28	2100	11000	5,000	5,000
Metals (in mg/kg)										
Aluminum	9100	2900	280	3000	21000	11000	21000	37000		
Arsenic	18	9.1	30	18	35	<150	85	36	82	420
Barium	82	25	100	28	220	<3100	220	270	370,000	120,000
Beryllium	<0.52	<0.57	<0.58	<0.48	<4.5	<77	1	1.4	5,100	3,100
Cadmium	0.26	<0.23	<2.3	<0.19	<1.8	<31	6.4	0.84	2,300	1,600
Chromium	330	6.7	190	50	(7400)	(20,000)	1100	750	7,900	13,000
Chromium Trivalent	nt	nt	nt	nt	7,393	19,988	11850	21930	1,000,000	1,000,000
Chromium Hexavalent	nt	nt	nt	nt	7.4	12	150	77	7,900	13,000
Cobalt	13	<5.7	<5.8	<4.8	59	<770	65	150	23,000	4,000
Lead	45	10	91	20	22	<46	91	58	1,800	750
Nickel	340	13	100	12	5800	14000	5800	14000	44,000	21,000
Selenium	0.6	<0.57	6.9	<0.48	<4.5	<77	6.9	1.5	15,000	9,700
Thallium	<1.0	<1.1	<12	<0.97	<9.1	<150	4.1	0	230	1,600
Vanadium	22	9.2	<58	11	60	<770	60	88	26,000	17,000
Zinc	120	59	<23	83	100	<310	220	280	880,000	580,000
PCBs (in mg/kg)										
PCB 1016	<0.035	<0.19	<3.9	<0.036	<0.062	<0.057	0	0		
PCB 1221	<0.035	<0.19	<3.9	<0.036	<0.062	<0.057	0	0		
PCB 1232	<0.035	<0.19	<3.9	<0.036	<0.062	<0.057	0	0		
PCB 1242	<0.035	0.8	<3.9	<0.036	<0.062	<0.057	0	1.1		
PCB 1248	<0.035	<0.19	<3.9	<0.036	<0.062	<0.057	0.058	0.057		
PCB 1254	<0.035	0.24	<3.9	<0.036	<0.062	<0.057	0	0.26		
PCB 1260	<0.035	<0.19	<3.9	<0.036	<0.062	<0.057	0.076	0.085		
Total PCBs	0	1.04	0	0	0	0	0.076	1.1	18	42



TABLE 1
Summary of Soil Analytical Results - PCB Remediation Area

Former J&L Steel Lagoons
Louisville, Stark County, Ohio

Chemical of Concern	SS-1 0'-2'	SS-2 0'-2'	SS-3 0'-2'	SS-4 0'-2'			Representative Concentration		Generic Direct Contact Standards	
<i>Date Sampled:</i>	03/13/2012	03/13/2012	03/13/2012	03/13/2012			<i>0 to 2 ft.</i>	<i>> 2 ft.</i>	C/I	C/E
VOCs, SVOCs, TPH, PCBs Not Targeted										
Metals (in mg/kg)										
Aluminum	nr	nr	nr	nr			0	0		
Arsenic	27	21	30	35			85	36	82	420
Barium	nr	nr	nr	nr			0	0	370,000	120,000
Beryllium	nr	nr	nr	nr			0	0	5,100	3,100
Cadmium	nr	nr	nr	nr			0	0	2,300	1,600
Chromium	nt	nt	nt	nt			0	0	7,900	13,000
Chromium Trivalent	nt	nt	nt	nt			0	0	1,000,000	1,000,000
Chromium Hexavalent	nt	nt	nt	nt			0	0	7,900	13,000
Cobalt	nr	nr	nr	nr			0	0	23,000	4,000
Lead	nr	nr	nr	nr			0	0	1,800	750
Nickel	nr	nr	nr	nr			0	0	44,000	21,000
Selenium	nr	nr	nr	nr			0	0	15,000	9,700
Thallium	nr	nr	nr	nr			0	0	230	1,600
Vanadium	nr	nr	nr	nr			0	0	26,000	17,000
Zinc	nr	nr	nr	nr			0	0	880,000	580,000

Notes:

Results and standards in mg/kg or ppm

Only those compounds detected in soil in the targeted PCB remediation area are presented in this table

Bold results exceed applicable generic direct contact soil standards (C/I, commercial/industrial - C/E, construction/excavation)

The highest detected concentrations in the targeted PCB remediation area are considered representative

Total chromium results in () exceeded or approached the lowest applicable soil direct contact chromium standard - chromium valency was analyzed on these samples

nt - analyte not tested

nr - analyte not reported



Table 2
Summary of Ground Water and Oil Product Analytical Data - PCB Remediation Area

Former J&L Steel Lagoons
Louisville, Stark County, Ohio

Unrestricted Potable Use Standard or Other Regulatory Established Criteria:		VOCs (in ug/L)		Metals (in ug/L)								PCBs (in ug/L)							
		67	1,300	10		100		15		320		0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Well ID	Sampling Date	Naphthalene	n-Butylbenzene	Arsenic	Arsenic - Dissolved	Chromium	Chromium - Dissolved	Lead	Lead - Dissolved	Nickel	Nickel - Dissolved	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	
MW-104	02/01/2012	<1.0	<1.0	<5.0	nt	6.2	nt	2.4	nt	33	nt	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	
MW-108	02/03/2012	<5.0	<5.0	120	nt	12	nt	1.1	nt	360	nt	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
	02/28/2012	nt	nt	140	nt	13	nt	1.1	nt	330	nt	nt	nt	nt	nt	nt	nt	nt	
	5/16/2012	nt	nt	120	65	6.1	<5.0	<0.20	<0.20	350	340	nt	nt	nt	nt	nt	nt	nt	
MW-109	02/03/2012	<1.0	<1.0	<5.0	nt	160	nt	<1.0	nt	310	nt	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	
	02/28/2012	nt	nt	<5.0	nt	120	nt	<1.0	nt	730	nt	nt	nt	nt	nt	nt	nt	nt	
	5/16/2012	nt	nt	<10	<10	11	11	<0.20	<0.20	810	810	nt	nt	nt	nt	nt	nt	nt	
MW-110	02/03/2012	<1.0	<1.0	37	nt	<2.0	nt	<1.0	nt	14	nt	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	
	02/28/2012	nt	nt	39	nt	5.1	nt	1.7	nt	14	nt	nt	nt	nt	nt	nt	nt	nt	
MW-110 Product	02/28/2012	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<5.3	<5.3	<5.3	<5.3	31	<5.3	10	
MW-111	02/01/2012	<1.0	<1.0	<5.0	nt	22	nt	2.4	nt	29	nt	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	
MW-116	03/26/12	<1.0	<1.0	12	nt	<2.0	nt	1.2	nt	72	nt	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
	05/16/12	nt	nt	10	<10	<5.0	<5.0	<0.20	<0.20	87	83	nt	nt	nt	nt	nt	nt	nt	
MW-138	07/13/12	<1.0	<1.0	49		76		59		180		<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	
MW-170	10/03/12	nt	nt	<10		<5.0		<3.0		<40		nt	nt	nt	nt	nt	nt	nt	
		VOCs (in ug/kg)		Metals (in ug/kg)								PCBs (in ug/kg)							
Trench Oil Product	10/12/12	37000	6500	1.5		24		0.49		<3.7		<48000	<48000	<48000	180000	<48000	<48000	<48000	

Notes:

Results and standards presented in ug/L or parts per billion

nt - Analyte not tested

Bold results exceed applicable unrestricted potable use standards (UPUS)

ATTACHMENT C



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FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-104

MONITORING WELL NO: MW-104

PROJECT: Former J&L Steel Lagoons
CLIENT: City of Louisville, Ohio
JOB NO.: 09031
GEOLOGIST: John Snyder
DATES DRILLED: 1-23-12 to 1-25-12

DRILLING CO.: Envirocore
METHOD OF DRILLING: Direct Push/4.25" HSA
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): 1101.58

☒ Water level during drilling

☐ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0		1	Very Moist, Brown SILT, Some Sand, Trace Gravel (ML)	0.0	
2		12	-Color Change to Reddish-Brown, Increasing Clay at 2.0'	0.0	
		2		0.0	
4		3	-Increasing Moisture 4.5'	0.0	
6		21	-Color Change to Gray 5.5' -Increasing Sand 6.0'	0.0	
		4	Very Moist to Wet, Brown SAND and GRAVEL, Some Silt (GW)	0.0	
8		5		0.0	
10		16	-Wet at 10.5'	0.0	
12		6		0.0	
		7	-Decreasing Moisture, Increasing Silt 12.5'	0.0	
14		24		0.0	
		8	-Decreasing Silt, Increasing Moisture 15.0'	0.0	
16		9		0.0	
18		22		0.0	
20		10		0.0	
22			Boring Terminated at 20.0'		

Bentonite

2" PVC Riser

Silica Sand

0.010"-slotted
2" PVC Screen



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FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-108

MONITORING WELL NO: MW-108

PROJECT: Former J&L Steel Lagoons
CLIENT: City of Louisville, Ohio
JOB NO.: 09031
GEOLOGIST: John Snyder
DATES DRILLED: 1-25-12

DRILLING CO.: Envirocore
METHOD OF DRILLING: Direct Push/4.25" HSA
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): 1097.69

☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0		1	Moist, Brown Clayey SILT, Few Gravel and Sand (ML)	0.7	
2		14	Moist, Brown Silty SAND, Trace Gravel (SW)	0.9	
4		2			
6		3	Very Moist, Reddish Clayey SILT (ML)	1.4	
8		33	-Petroleum Odor Noted 6.0'		
10		4		3.3	
12		5	-Increasing Moisture, Cont. Petroleum Odor 9.0'	3.9	
14		42		3.4	
16		6	Very Moist, Dark Gray Silty CLAY (CL)		
18		7	-Increasing Moisture and Silt at 12.5'	1.9	
20		42	Moist, Black PEAT (PT)	1.7	
22		8		1.5	
24		9	Moist, Gray Clayey SILT (ML)		
26		44	-Increasing Sand and Moisture 18.0'	1.6	
28		10	Wet, Gray Silty Fine SAND, Trace Gravel (SM)	1.4	
30		48		1.2	
32		11	Very Moist, Dark Gray Clayey SILT, Trace Sand (ML)		
34		12	Boring Terminated at 24.0'		

NOTES: Groundwater Encountered at 19.5' During Sampling



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FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-109

MONITORING WELL NO: MW-109

PROJECT: Former J&L Steel Lagoons
CLIENT: City of Louisville, Ohio
JOB NO.: 09031
GEOLOGIST: John Snyder
DATES DRILLED: 1-25-12

DRILLING CO.: Envirocore
METHOD OF DRILLING: Direct Push/4.25" HSA
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): 1103.24

☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0		1	Moist, Brown Silty SAND, Some Gravel (SM)	0.8	
2		14	-Increasing Silt 2.0'	1.0	
4		2	Moist, Reddish-Brown SILT, Some Gravel, Trace Sand (ML)	1.5	
6		3	-Inc. Moisture and Clay, Dec. Gravel 5.0'	1.4	
8		39		1.5	
10		4		1.7	
12		5		1.4	
14		7	-Slight Petroleum Odor Noted 12.0'	1.3	
16		6		0.8	
18		8	Moist to Very Moist, Brown Silty CLAY, Some Sand (CL)	0.8	
20		9	-Increasing Moisture at 16.0'	1.5	
22		25	Very Moist, Brown Silty SAND and GRAVEL (GM)	1.4	
24		10	-Wet at 20.0'		
26		11	Wet, Brown Gravel (GW)		
		30	-Increasing Sand and Silt 23.5'		
		12	Boring Terminated at 24.0'		

NOTES: Groundwater Encountered at 20.0' During Sampling

FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-110

MONITORING WELL NO: MW-110

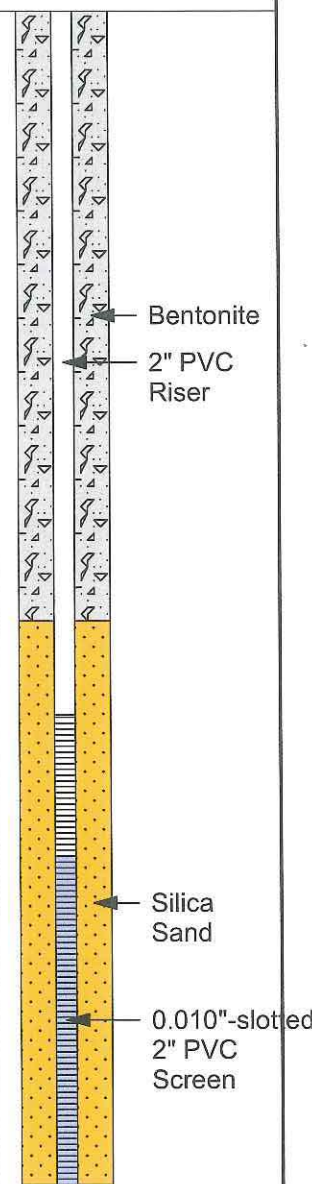
PROJECT: Former J&L Steel Lagoons
CLIENT: City of Louisville, Ohio
JOB NO.: 09031
GEOLOGIST: John Snyder
DATES DRILLED: 1-25-12

DRILLING CO.: Envirocore
METHOD OF DRILLING: Direct Push/4.25" HSA
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): 1103.97

☒ Water level during drilling

☐ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE	RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0		1	16	Very Moist, Reddish-Brown Silty SAND and GRAVEL (GM)	0.8	
2		2		Very Moist, Reddish-Brown Clayey SILT, Some Sand and Gravel (ML)	0.8	
4		3		-Color Change to Brown and Gray 5.0'	0.9	
6		4	16	Very Moist to Wet, Dark Gray Silty SAND, Few Gravel, Petroleum Odor (SM)	3.5	
8		5		Very Moist, Gray and Black SAND, Few Gravel, Petroleum Odor (SW)	7.7	
10		6	20	-Increasing Silt, Color Change to Brown with Black Staining 10.0'	15.4	
12		7			17.8	
14		8	22	Moist, Brown and Gray Clayey SILT (ML)	2.2	
16		9		Very Moist, Brown SAND and GRAVEL, Slight Petroleum Odor (GW)	1.5	
18		10	18	-Wet at 18.0'	1.4	
20		11		Wet, Brown Medium-Grained SAND (SP)	0.9	
22		12	40	-Increasing Gravel, Becoming Well-Graded 22.0'	0.9	
24				Boring Terminated at 24.0'		
26						

NOTES: Groundwater Encountered at 18.0' During Sampling

FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-111

MONITORING WELL NO: MW-111

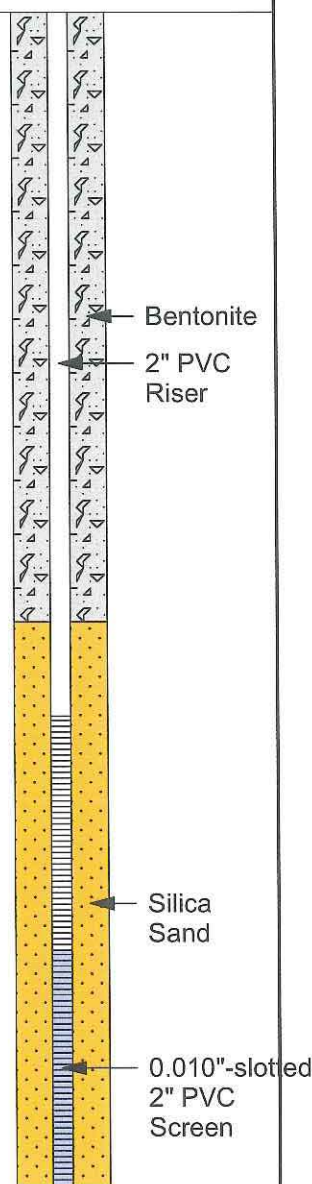
PROJECT: Former J&L Steel Lagoons
CLIENT: City of Louisville, Ohio
JOB NO.: 09031
GEOLOGIST: John Snyder
DATES DRILLED: 1-25-12

DRILLING CO.: Envirocore
METHOD OF DRILLING: Direct Push/4.25" HSA
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): 1107.1

☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0		1	Moist, Brown, Silty SAND, Some Clay, Trace Gravel (SM) -Decreasing Silt and Clay	0.9	
2		16	Moist, Brown SAND, Trace Gravel (SW)	1	
4		3	Moist to Very Moist, Red-Brown Clayey SILT with Organics (ML) -Increasing Clay	1	
6		28	Moist to Very Moist, Brown (some Red-Brown) Silty CLAY, Some Sand (CL) -Increasing Sand and Moisture	0.5	
8		5	Very Moist, Red-Brown Clayey SILT (ML)	0.4	
10		42	-Increasing Sand from 10 to 10.5'	0.1	
12		6		0	
14		7		0	
16		30	Very Moist to Wet, Brown Silty SAND, Trace Gravel (SM) -Increasing Moisture and Gravel	0	
18		9	Very Moist to Wet, Brown SAND and GRAVEL (GW)	0.5	
20		16	-Wet at 20'	0.7	
22		11	Brown SAND, Some Fine Gravel (SP) -Increasing Gravel -Increasing Silt	0.7	
24		22		0.4	
26			Boring Terminated at 24.0'		

NOTES: Groundwater Encountered at 20.0' During Sampling

FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-116

MONITORING WELL NO: MW-116

PROJECT: Former J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: N. Fela
DATES DRILLED: March 18, 2012

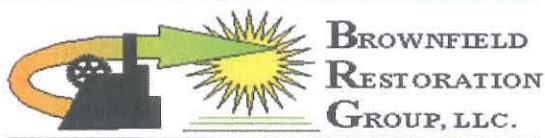
DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push/4.25" HSA
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): 1091.75

☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE	RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0		1	21	Moist, Gray-Brown, Mottled, Silty CLAY, Trace Gravel (CL)	4.5	Bentonite
2		2	NR		-	2" PVC Riser
4		3	20		0.0	Bentonite Plug
6		4	2		3.0	2" PVC Screen
8		5	15		6.3	
10		6	NR		-	Sandpack
12		7	17		8.1	2" PVC Screen
14		8	18		6.0	
16				Saturated, Black-Gray, Poorly Sorted, SAND and GRAVEL, Little Silt and Clay (GP) Boring Terminated at 16.0'		
18						



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FIELD BOREHOLE LOG

BOREHOLE NO.: B-118

PROJECT: J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: N. Fela
DATES DRILLED: March 13, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): --

☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE	RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	Range of PID (ppm) 1 10000
0		1	23	Dry-Wet, Brown, Poorly Sorted, Clayey SAND and GRAVEL, Trace Cinders (GP) (Fill)	4.4
2		2	NR		-
4		3	24		2.1
6		4	NR		-
8		5	24	Moist, Brown-Gray, Mottled, CLAY, Trace Silt and Sand (CL)	2.3
10		6	3		4.7
12		7	20		2.8
14		8	21		4.7
16		9	20		4.1
18		10	21	Moist, Dark Brown, SILT (ML)	3.9
20		11	24	Damp, Dark Brown-Gray, CLAY, Little Silt (CL)	3.8
22		12	24		4.2
24				Boring Terminated at 24.0'	
26					

NOTES: Ground Water Encountered at 22.7' During Sampling



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FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-117

MONITORING WELL NO: MW-117

PROJECT: Former J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: N. Fela
DATES DRILLED: March 13, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push/4.25" HSA
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): 1092.34

☒ Water level during drilling ☒ Secondary water level during drilling ☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0			Wet, Gray-Brown, Mottled, Soft CLAY, Little Silt (CL)	2.1	Bentonite
2		2 NR		-	2" PVC Riser Bentonite Plug
4		3 17		2.3	
6		4 18	Wet, Dark Brown, SILT (ML)	3.7	2" PVC Screen
8		5 19	Saturated, Dark Brown, Well Graded, GRAVELS, Little Sand (GP)	5.2	Sandpack
10		6 17		2.2	2" PVC Screen
12		7 NR		-	
14		8 NR		-	
16			Boring Terminated at 16.0'		

NOTES: Ground Water Encountered at 7.8' During Sampling



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FIELD BOREHOLE LOG

BOREHOLE NO.: B-121

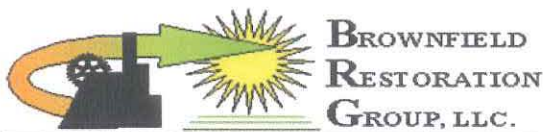
PROJECT: Former J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: N. Fela
DATES DRILLED: March 14, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push
SAMPLING METHODS: MacroCore
ELEVATION (TOC): --

☒ Water level during drilling ☒ Secondary water level during drilling ☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	Range of PID (ppm) 1 10000
0			Wet, Brown-Gray, CLAY, Some Silt, Little Sand and Gravel (CL)	
1		24		4.6
2		NR		NR
4		17	Wet, Reddish Brown, SILT (ML)	4.9
6		NR		NR
8		24	Wet, Brown, Poorly Sorted, SAND and GRAVEL, Little Clay (GP)	5.0
10		NR	Wet, Brown, Sandy CLAY, Trace Silt (SC)	NR
12		16	Saturated, Brown, Poorly Sorted, SAND and GRAVEL, Some Clay (GP)	3.6
14		NR		NR
16			Boring Terminated at 16.0'	
18				

NOTES: Groundwater Encountered at 13.0' During Sampling



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FIELD BOREHOLE LOG

BOREHOLE NO.: B-122

PROJECT: J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: N. Fela
DATES DRILLED: March 14, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push
SAMPLING METHODS: MacroCore
ELEVATION (TOC): --

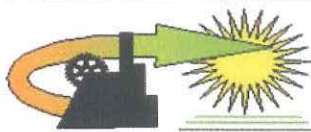
☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE	RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	Range of PID (ppm) 1 10000
0		1	17	Moist-Saturated, Brown, Poorly Sorted, SAND and GRAVEL, Little Clay and Silt (GP)	4.6
2		2	NR		-
4		3	23		1.6
6		4	NR	Decrease in Clay and Silt	-
8		5	13		4.4
10		6	NR		-
12				Boring Terminated at 12.0'	
14					

NOTES: Groundwater Encountered at 8.7' During Sampling



**BROWNFIELD
RESTORATION
GROUP, LLC.**

1000 S. Cleveland-Massillon Road
Suite # 106
Akron, Ohio
Phone: (330) 668-4600

FIELD BOREHOLE LOG

BOREHOLE NO.: B-123

PROJECT: J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: N. Fela
DATES DRILLED: March 14, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): --

☒ Water level during drilling

☐ Secondary water level during drilling

☐ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE	RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	Range of PID (ppm) 1 10000
0				Moist-Saturated, Brown-Black, Poorly Sorted, SAND and GRAVEL, Some Clay and Silt (GP)	
1		1	24		286
2				Stong Petroleum Staining and Odor	
2		2	NR		-
4				Stong Petroleum Staining and Odor	
3		3	17		758
6				Stong Petroleum Staining and Odor	
4		4	18		900
8				Boring Terminated at 8.0'	
10					

NOTES: Groundwater Encountered at 7.5' During Sampling



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FIELD BOREHOLE LOG

BOREHOLE NO.: B-124

PROJECT: J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: N. Fela
DATES DRILLED: March 14, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push
SAMPLING METHODS: MacroCore
ELEVATION (TOC): --

☒ Water level during drilling

☐ Secondary water level during drilling

☐ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE	RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	Range of PID (ppm) 1 10000
0		1	16	Moist, Red, Silty CLAY, Trace Sand (CL)	12.6
2		2	NR		NR
4		3	22	Damp, Black, SILT (ML)	5.2
6		4	NR		NR
8		5	19	Saturated, Brown, Poorly Sorted, SAND and GRAVEL, Some Clay (GP)	7.1
10		6	NR		NR
12				Boring Terminated at 12.0'	
14					

NOTES: Ground Water Encountered at 8.0' During Sampling



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FIELD BOREHOLE LOG

BOREHOLE NO.: B-125

PROJECT: J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: N. Fela
DATES DRILLED: March 14, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push
SAMPLING METHODS: Dual Tube
ELEVATION (TOC): --

☒ Water level during drilling ☒ Secondary water level during drilling ☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	Range of PID (ppm) 1 10000
0			Moist, Brown, Poorly Sorted, Clayey SAND and GRAVEL, Trace Iron Fragments (GC) (fill)	
1		24		4.9
2				
2		NR		-
4			Wet, Brown-Black, SAND and GRAVEL, Some Clay and Cinders (GP) (Fill)	
3		19		41.7
6			Heavy Petroleum Contamination	
4		NR		-
8			Saturated, Gray-Black, Clayey SAND and GRAVEL, Little Silt (GP)	
5		24		22.4
10			Heavy Petroleum Contamination	
6		NR		-
12			Boring Terminated at 12.0'	

NOTES: Ground Water Encountered at 7.5' During Sampling

FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-136

MONITORING WELL NO: MW-136

PROJECT: Former J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: J. Snyder
DATES DRILLED: May 15, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push
SAMPLING METHODS: Macrocore
ELEVATION (TOC): 1105.69

☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0					
2		17	Moist to Very Moist, Red-Brown, Clayey SILT (ML) -Some zones of Brown Clay	4.2	Concrete
4		2		1.2	
6		22	Moist, Gray, Clayey SILT (ML) -Increasing Moisture	1.3	Bentonite
8		4		3.1	1" PVC Riser
10		5	Slightly Moist, Brown, SAND and Gravel, Some Silt (SW)	2.8	
12		6	-Increasing Silt	2.2	
14		7	Moist, Brown, Clayey SILT (ML) -Black staining at 12.5' - 13' -Petroleum Odor -Increasing Moisture	5.7	1" Pre-pack
16		8	-Very moist to wet at 15'	2.6	Sandpack
18		9	Wet, Gray/Brown, SAND and GRAVEL (GW), Some Silt -Wet at 16'	2.9	
20		10		2.5	1" Pre-pack
			Boring terminated at 20'		

NOTES: Groundwater encountered at 16.0' during sampling.

FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-137

MONITORING WELL NO: MW-137

PROJECT: Former J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: J. Snyder
DATES DRILLED: May 15, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push
SAMPLING METHODS: Macrocore
ELEVATION (TOC): 1105.60

☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0					
1		1	Moist, Dark Brown, Clayey SILT and Sand, Few Gravel and Slag (ML) (Fill)	1.5	Concrete
2		34	-Increasing Slag		
2		2	Dry, Gray, SLAG (Fill)	6.3	Bentonite
4			Moist, Red, Clayey SILT, Some Gray Mottling (ML)		2" PVC Riser
6		36	-Increasing Sand and Gravel, Increasing Moisture at 6.0'	4.8	
8		4	-Increasing Silt, Decreasing Gravel at 8.0'	4.2	
10		5	-Petroleum Odor and black staining at 9.0'	6.1	2" PVC Screen
10		28	Very Moist, Black Stained SAND (SP)		Sandpack
12		6	Very Moist, Gray, SILT, Some Clay (ML)	67.4	
14		36	Wet, Black Stained, SAND (SW), Some Gravel	129	
14		8	-Decreasing Gravel at 14.0'	167	2" PVC Screen
16			Moist, Gray-Brown, Clayey SILT (ML)		
16			Boring terminated at 16'		

NOTES: Groundwater encountered at 12.0' during sampling.

FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-139

MONITORING WELL NO: MW-139

PROJECT: Former J&L Lagoons
CLIENT: City of Louisville
JOB NO.: 09031
GEOLOGIST: J. Snyder
DATES DRILLED: May 15, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: Direct Push
SAMPLING METHODS: Macrocore
ELEVATION (TOC): --

☒ Water level during drilling ☒ Secondary water level during drilling ☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0			Moist, Dark Brown, Silty, Clayey SAND with Little Gravel and Organics (GW)	5.2	Concrete
2		9	Slightly Moist, Brown, SAND (SW), Some Gravel, Little Silt -Increasing Silt at 3'	0.7	Bentonite
4		2			2" PVC Riser
6		3	Slightly Moist, Brown, SILT, Some Sand and Gravel (ML)	3.3	
8		7		0.6	2" PVC Screen
10		4	Moist, Black CINDERS and SLAG (GW) (Fill) -Petroleum Odor -Ground Water Encountered at 10.0'	61.5	Sandpack
12		5		85.9	
14		18	Wet, Gray SAND, Black Staining (SW)	72.3	2" PVC Screen
16		6	Moist, Brown/Gray, Silty Fine SAND (SM)	71.7	
		7	Boring Terminated at 16.0'		
		8			

NOTES: Groundwater encountered at 10.0' during sampling.



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FIELD BOREHOLE LOG

BOREHOLE NO.: B-165

PROJECT: J&L Lagoons (Buffer Zone)
CLIENT: Groffre Investments
JOB NO.: 09031
GEOLOGIST: J. Snyder
DATES DRILLED: July 6, 2012

DRILLING CO.: EnviroCore Ltd.
METHOD OF DRILLING: 4.25" HSA
SAMPLING METHODS: Split Spoon
ELEVATION (TOC): --

☒ Water level during drilling

☐ Secondary water level during drilling

☐ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE	RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	Range of PID (ppm) 1 10000
0				Slightly Moist, Black CINDERS, Some Slag and Brick Fragments (GW)	
1		1	8		10.2
2		2	12	Very Moist, Brownish-Yellow Clayey SILT, Some Sand and Gravel/Sandstone Fragments/Slag (ML) (Fill)	10.8
4				-Decreasing moisture at 4.0'	
3		3	16	Slightly Moist, SAND and SLAG, Some Sandstone Fragments and Silt (GW)	10.5
6				-Decreasing silt, increasing gravel at 6.0'	
4		4	12		9.9
8		5	12		12.8
10				-Increasing clay and silt, increasing moisture to wet at 11.0'	
11		6	16	-Decreasing moisture at 11.5'	1.2
12					
13		7	8	Auger refusal at 14.0'	1.3
14				Boring Terminated at 14.0'	

NOTES: Groundwater encountered at 11.0' during sampling.

FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-170

MONITORING WELL NO: MW-170

PROJECT: Former J&L Lagoons
CLIENT: City of Louisville, OH
JOB NO.: 09031
GEOLOGIST: J. Snyder
DATES DRILLED: September 26, 2012

DRILLING CO.: Boart Longyear
METHOD OF DRILLING: Sonic
SAMPLING METHODS: Core barrel
ELEVATION (TOC): 1087.60

☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE	RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
0		1		Moist, Red Clayey SILT, Trace Sand and Gravel (ML)	1.4	
2		2		-Increasing moisture at 2.0'	1.7	
4		3	9	-Decreasing moisture at 5.5'	2.1	
6		4		Moist, Brown SAND, Some Gravel, Little Silt (SW)	2.2	
8		5		-Gray silty clay with little fine sand layer from 7.0-8.0'	.21	
10		6		-Decreasing gravel, becoming gray-brown at 8.5'	1.5	
12		7	10	Wet, Red-Brown Silty Fine SAND, Some Clay (SM)	2.4	
14		8		-Decreasing clay and silt at 10.5'	2.5	
16		9		Wet, Brown Silty SAND and GRAVEL (GW)	2.6	
18		10		-Decreasing Silt at 13.0'	2.1	
20		11			1.4	
22		12	9	-Increasing gravel at 22.0'	2.5	
24		13		Wet, Gray SAND and GRAVEL (GW)	2.0	
26		14		Wet, Gray SAND (SW)	2.6	
28		15		Wet, SAND and GRAVEL (GW)	3.0	
30		16		-Color from gray to brown at 26.5'	2.2	
32						

NOTES: Groundwater encountered at 9.0' during sampling.

FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-170

MONITORING WELL NO: MW-170

PROJECT: Former J&L Lagoons
CLIENT: City of Louisville, OH
JOB NO.: 09031
GEOLOGIST: J. Snyder
DATES DRILLED: September 26, 2012

DRILLING CO.: Boart Longyear
METHOD OF DRILLING: Sonic
SAMPLING METHODS: Core barrel
ELEVATION (TOC): 1087.60

☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE	RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
32		17	10		2.3	
34		18			1.3	
36		19		Wet, Gray SAND, Little Gravel (SW)	1.7	
38		20		Wet, Gray SAND and GRAVEL (GW)	0.9	
40		21		Wet, Gray SILT, Little Fine Sand and Clay (ML)	2.8	
42		22	8	-Decreasing sand at 40.0'	2.4	
44		23		-Increasing sand at 44.0'	2.1	
46		24		Wet, Gray Silty SAND (SM)	2.3	
48		25		-Increasing sand grain size, decreasing silt at 46.0'	2.6	
50		26		-Thin clay layer at 48.5'	1.7	
52		27	10	Wet, Gray SAND and GRAVEL, Little Silt (GW)	2.1	
54		28		-Decreasing gravel at 51.0'	3.0	
56		29			2.2	
58		30		-Coal fragments at 57.0'	2.6	
60		31		Wet, SAND, Little Gravel (SW)	1.9	
62		32	10	-Color to gray-brown at 60.0'	1.7	
64				-Decreasing gray color at 61.5'		

Grout

2" PVC Riser

FIELD BOREHOLE AND MONITORING WELL LOG

BOREHOLE NO.: B-170

MONITORING WELL NO: MW-170

PROJECT: Former J&L Lagoons
CLIENT: City of Louisville, OH
JOB NO.: 09031
GEOLOGIST: J. Snyder
DATES DRILLED: September 26, 2012

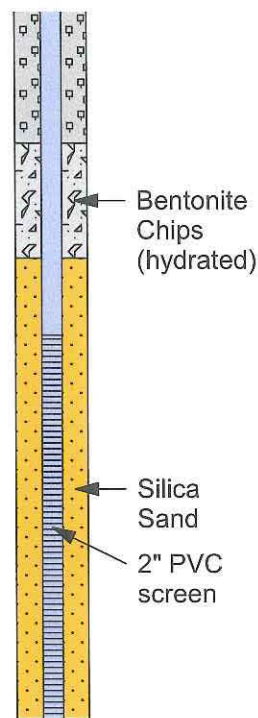
DRILLING CO.: Boart Longyear
METHOD OF DRILLING: Sonic
SAMPLING METHODS: Core barrel
ELEVATION (TOC): 1087.60

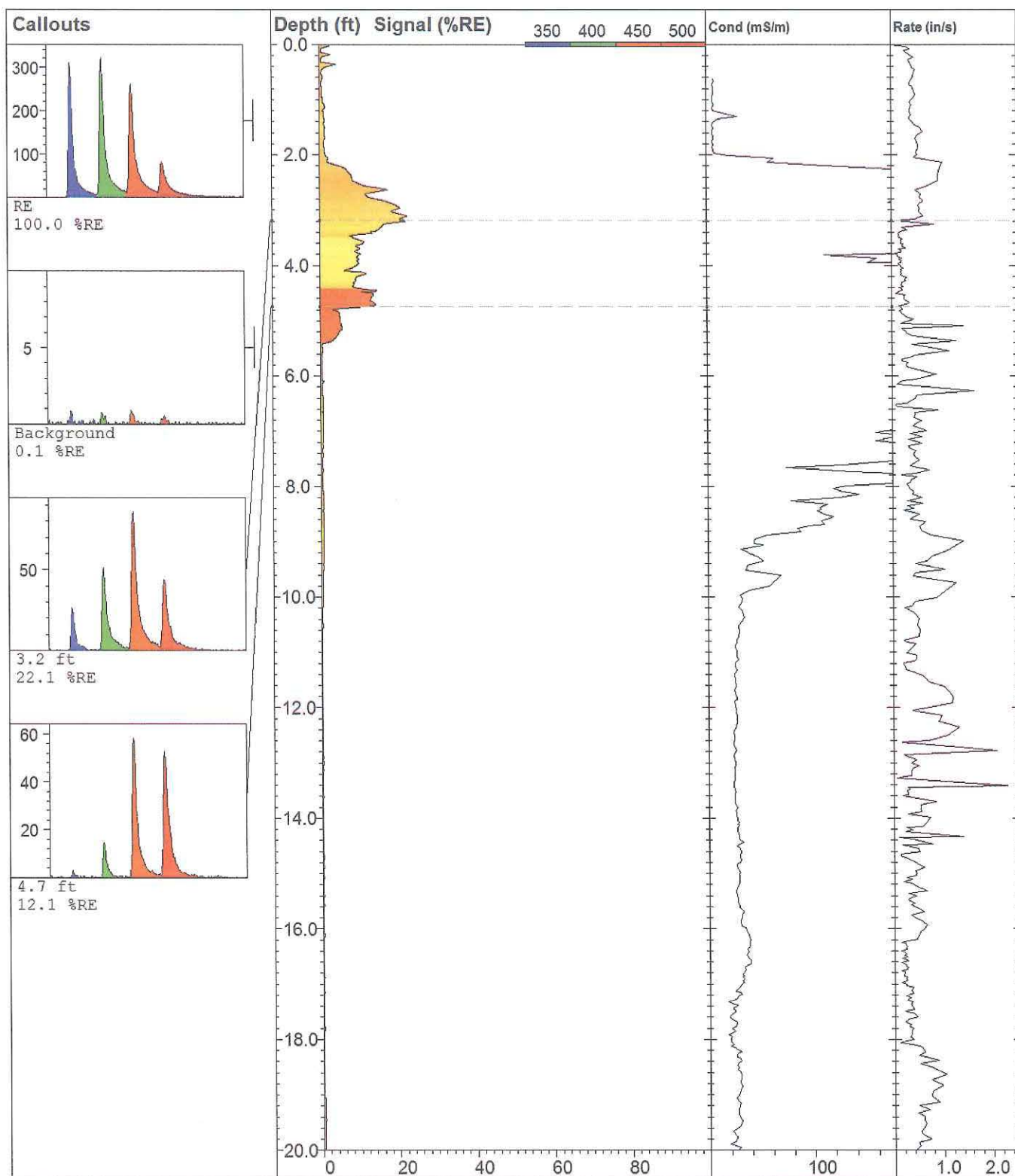
☒ Water level during drilling

☒ Secondary water level during drilling

☒ Static water level

DEPTH	SOIL SYMBOLS	SAMPLE RECOVERY (inches)	STRATIGRAPHIC DESCRIPTION	PID (ppm) 1 10000	WELL CONSTRUCTION
64		33		2.2	
66		34	-Increasing coal fragments and gravel at 67.0'	1.9	
68		35	-Color to brown at 68.0'	2.2	
70		36	Wet, Gray-Brown Silty SAND and GRAVEL (GM)	2.4	
72		37 10	-Color to brown at 71.0'	2.3	
74		38	-Increasing silt and clay, color to gray at 74.5'	2.6	
76		39	-Decreasing silt and clay at 75.5'	2.3	
78		40	-Color to brown at 76.5'	2.5	
80		41	-Decreasing silt at 77.5'	2.1	
82		42 10	-Color to gray at 78.0'	2.3	
84		43	-Increasing silt and clay at 82.0'	2.0	
86		44	Very Moist, Gray CLAY, Some Silt (CL) -Decreasing silt at 84.0'	3.0	
88			-Increasing silt and fine sand at 86.0'		
90			Boring Terminated at 88.0'		





UV-001

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
20.00 ft

Client:
Brownfield Restoration G

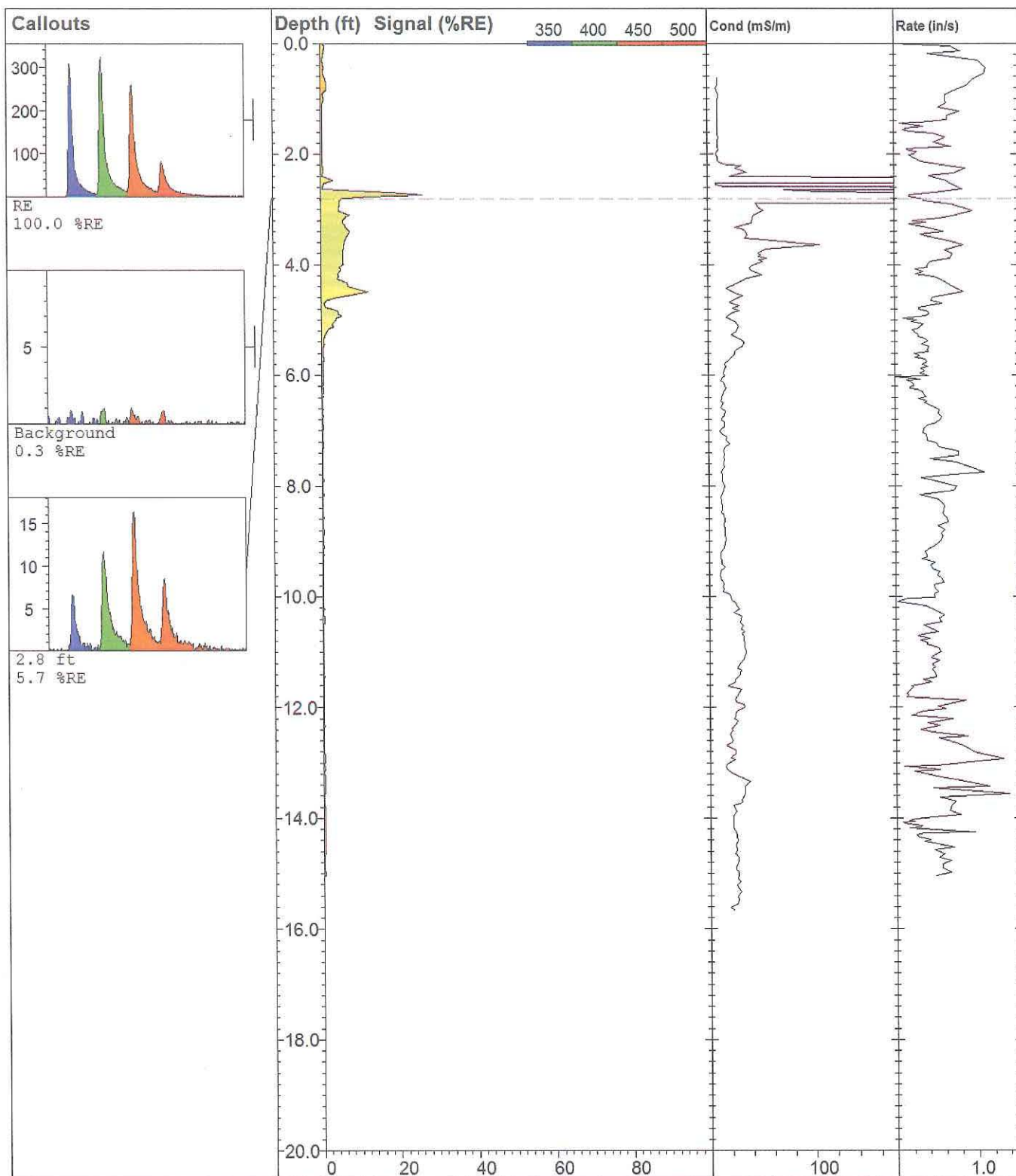
Longitude / Fix:
Unavailable / NA

Max signal:
22.7 % @ 3.19 ft

Job:
093-OHDS-12

Operator/Unit:
AK/BG/UVOST1013

Date & Time:
2012-08-28 09:16 EDT



UV-002

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
15.05 ft

Client:
Brownfield Restoration G

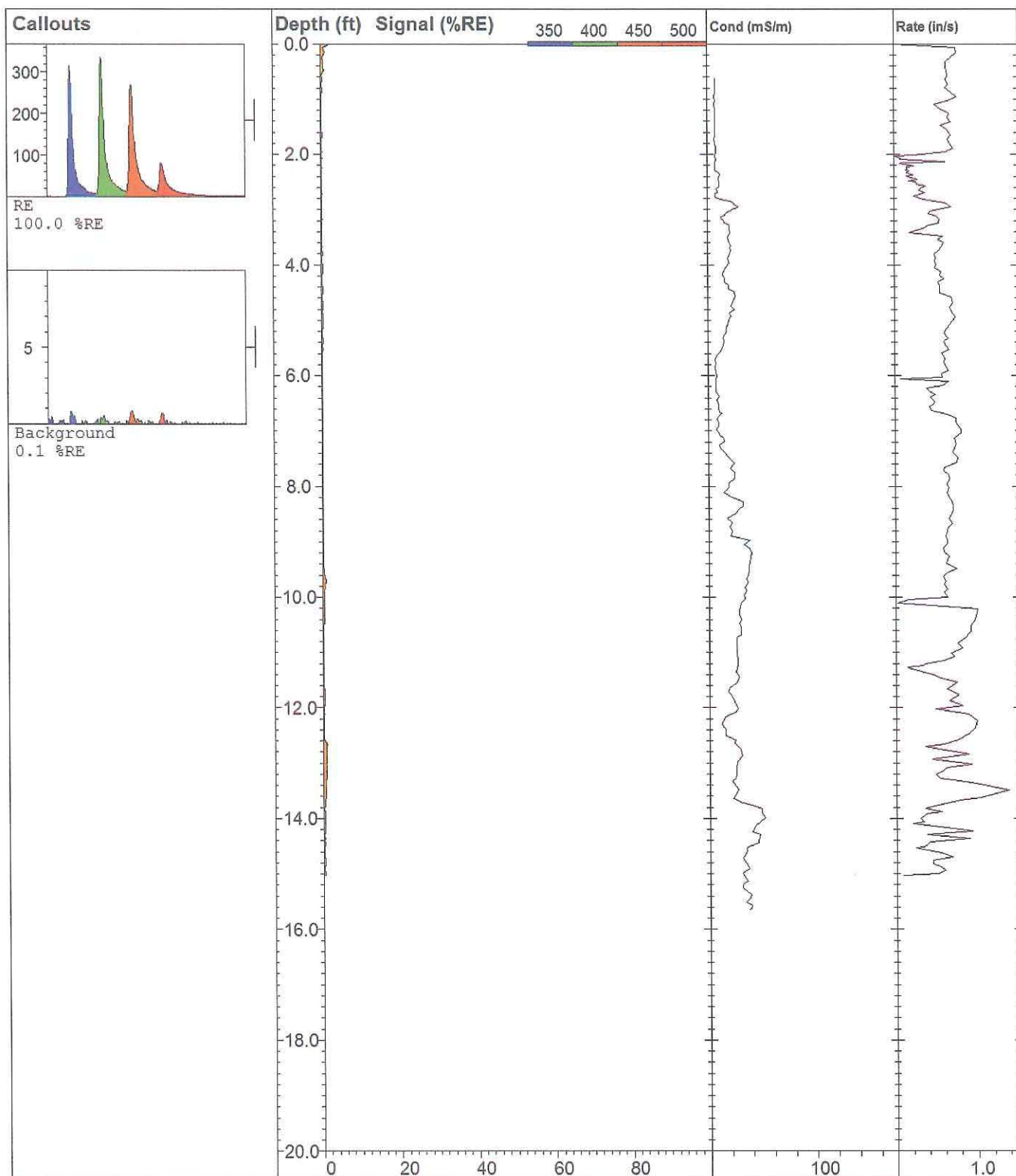
Longitude / Fix:
Unavailable / NA

Max signal:
26.4 % @ 2.74 ft

Job:
093-OHDS-12

Operator/Unit:
AK/BG/UVOST1013

Date & Time:
2012-08-28 09:51 EDT



UV-003

UVOST By Dakota
www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
15.03 ft

Client:
Brownfield Restoration G

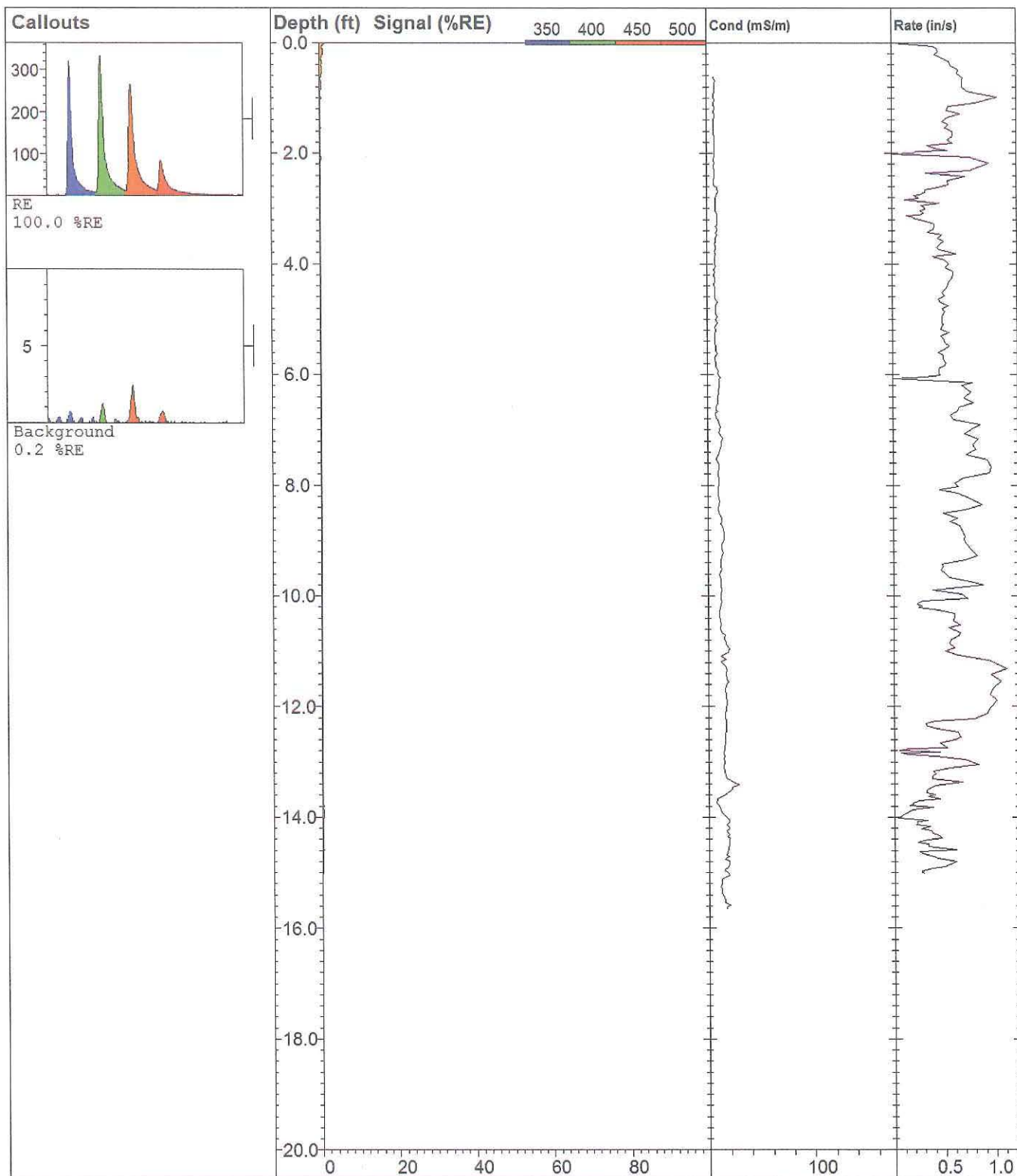
Longitude / Fix:
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Max signal:
2.4 % @ 0.00 ft

Job:
093-OHDS-12

Operator/Unit:
AK/BG/UVOST1013

Date & Time:
2012-08-28 10:16 EDT



UV-004

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
15.01 ft

Client:
Brownfield Restoration G

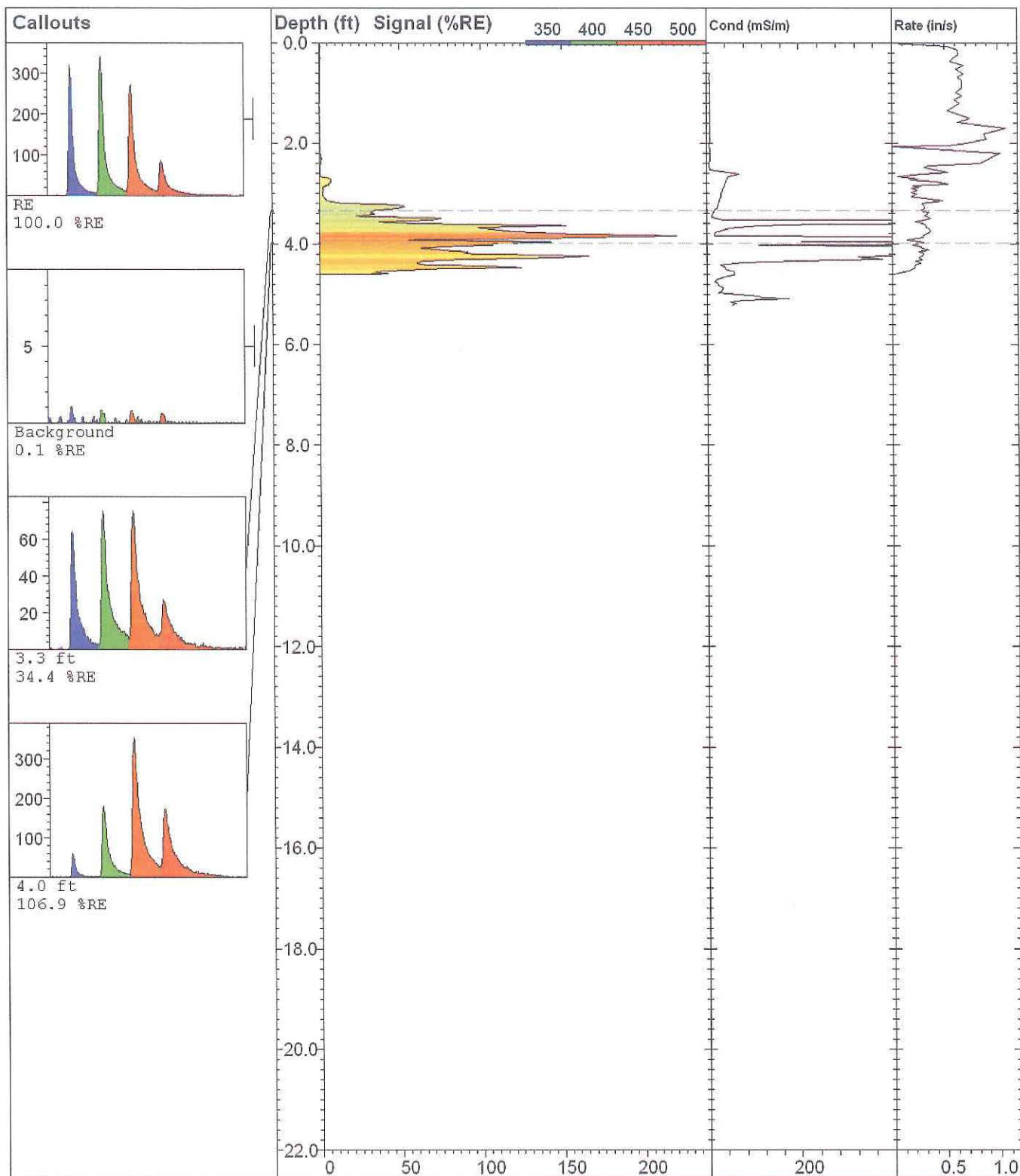
Longitude / Fix:
Unavailable / NA

Max signal:
1.2 % @ 0.01 ft

Job:
093-OHDS-12

Operator/Unit:
AK/BG/UVOST1013

Date & Time:
2012-08-28 10:42 EDT



UV-005

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
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Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

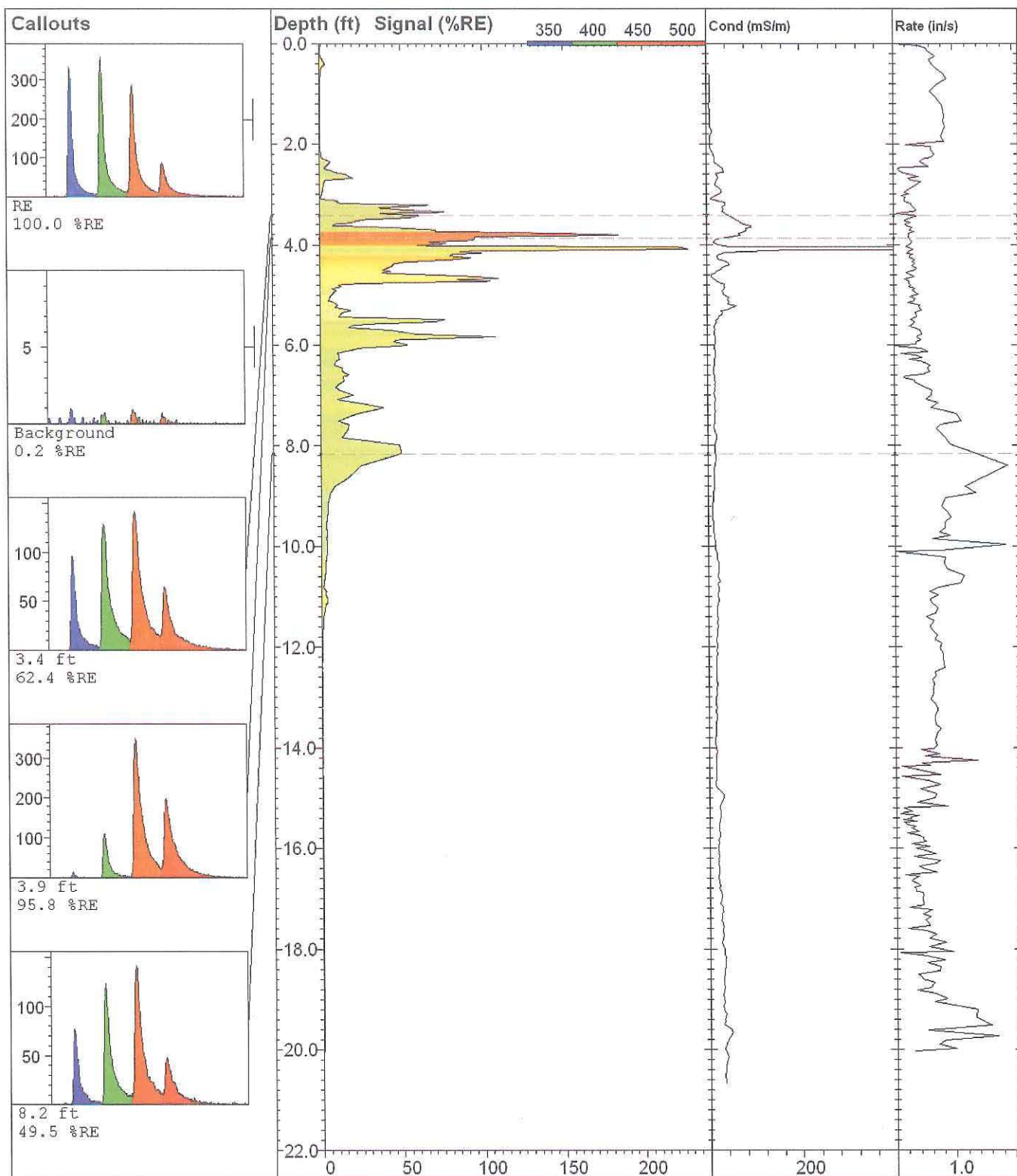
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
4.61 ft

Max signal:
223.0 %RE @ 3.84 ft

Date & Time:
2012-08-28 11:18 EDT



UV-005a

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
20.04 ft

Client / Job:
Brownfield Restoration G

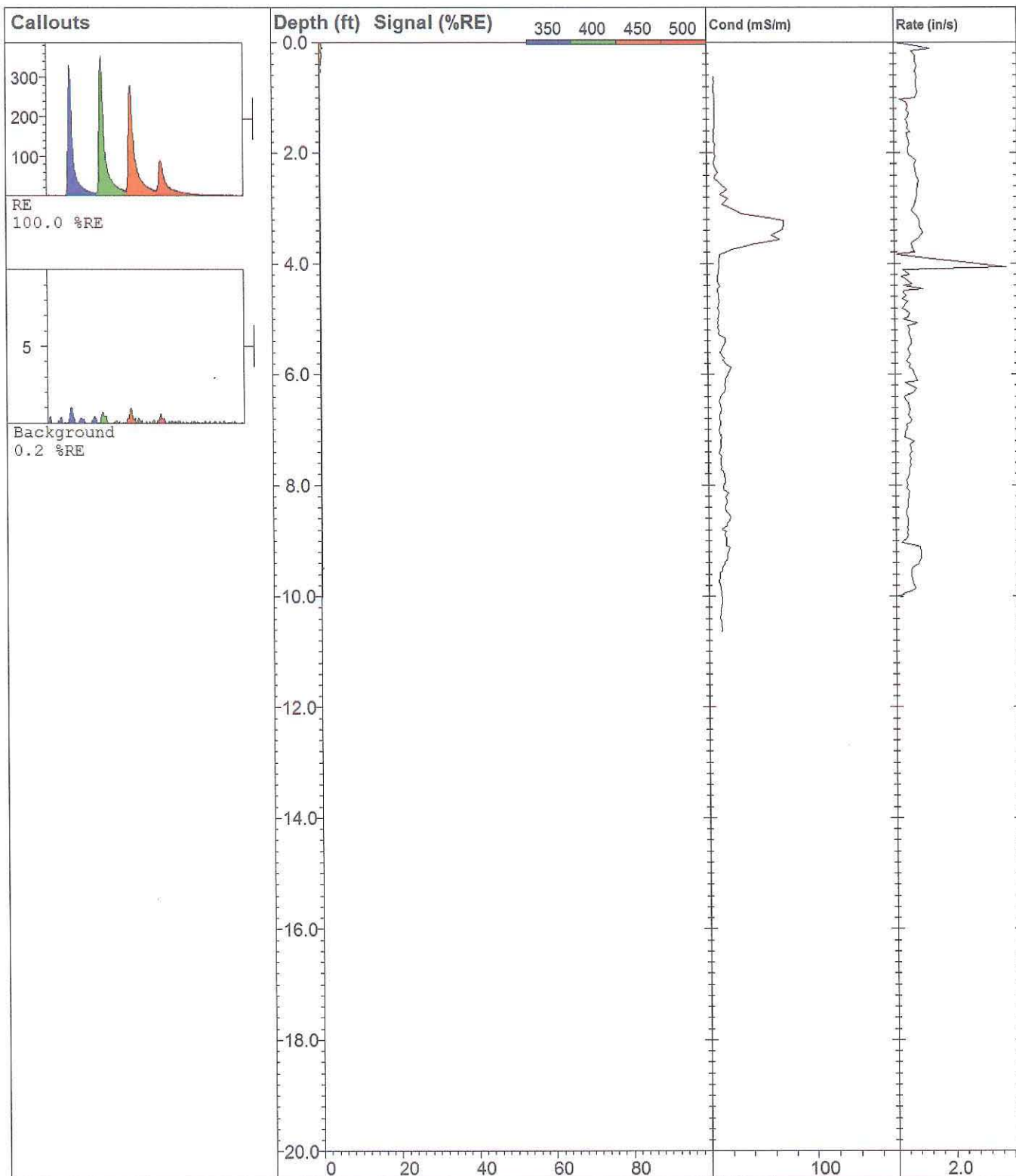
Longitude / Fix:
Unavailable / NA

Max signal:
228.4 %RE @ 4.09 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-28 11:30 EDT



UV-006

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
10.02 ft

Client:
Brownfield Restoration G

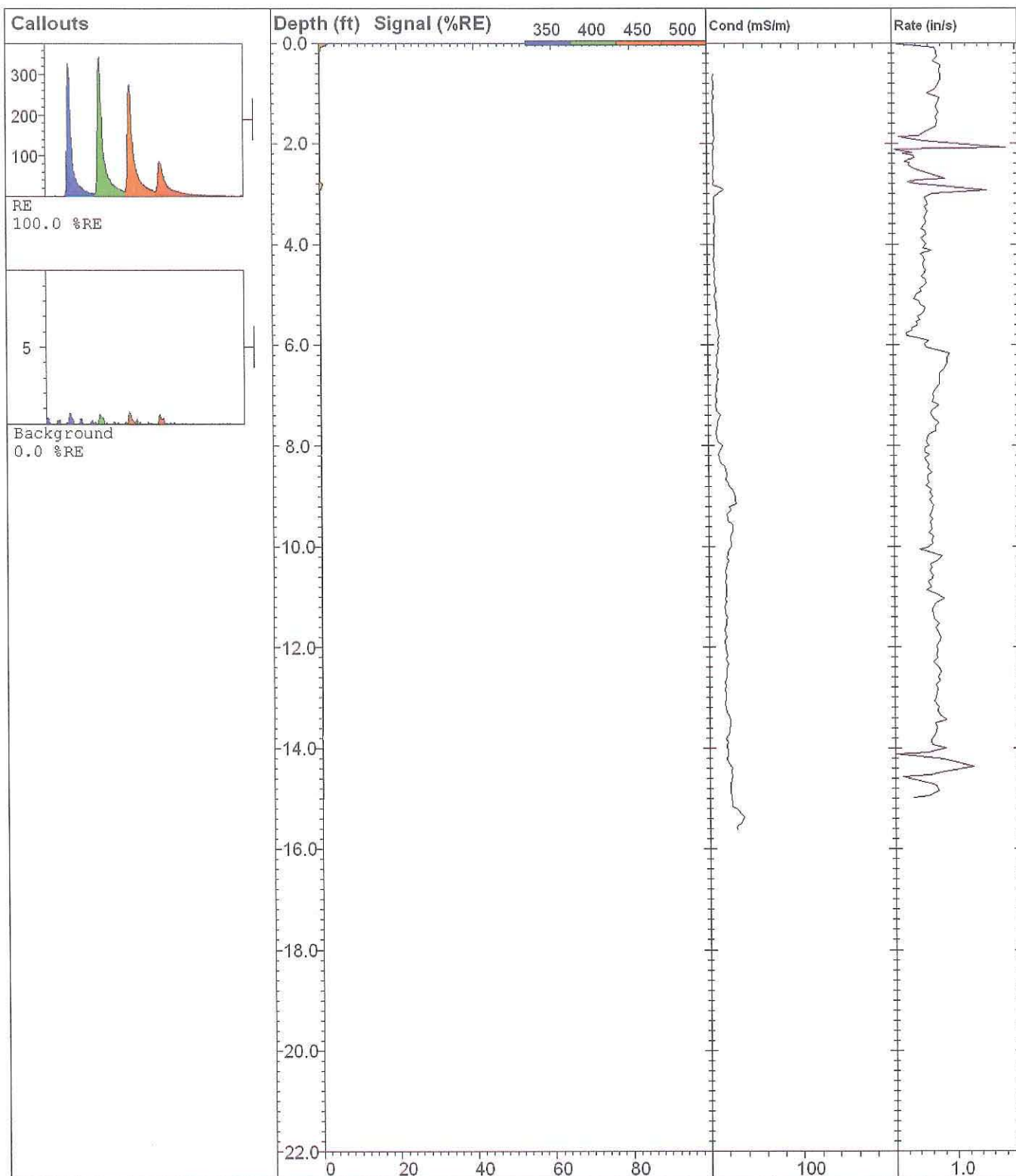
Longitude / Fix:
Unavailable / NA

Max signal:
0.8 % @ 0.11 ft

Job:
093-OHDS-12

Operator/Unit:
AK/BG/UVOST1013

Date & Time:
2012-08-28 14:12 EDT



UV-007

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
15.00 ft

Client / Job:
Brownfield Restoration G

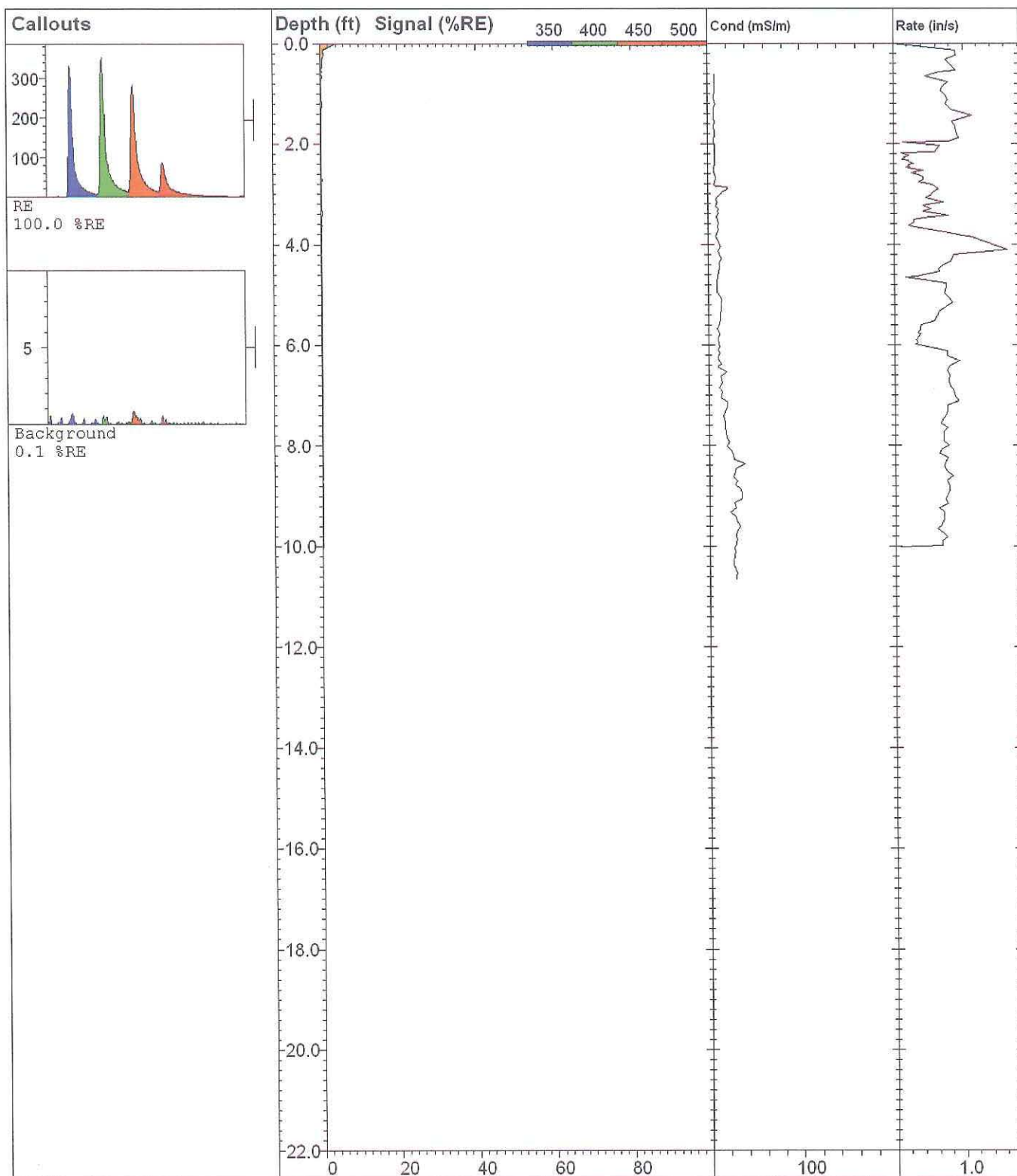
Longitude / Fix:
Unavailable / NA

Max signal:
2.8 %RE @ 0.00 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-28 14:31 EDT



UV-008

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
10.02 ft

Client / Job:
Brownfield Restoration G

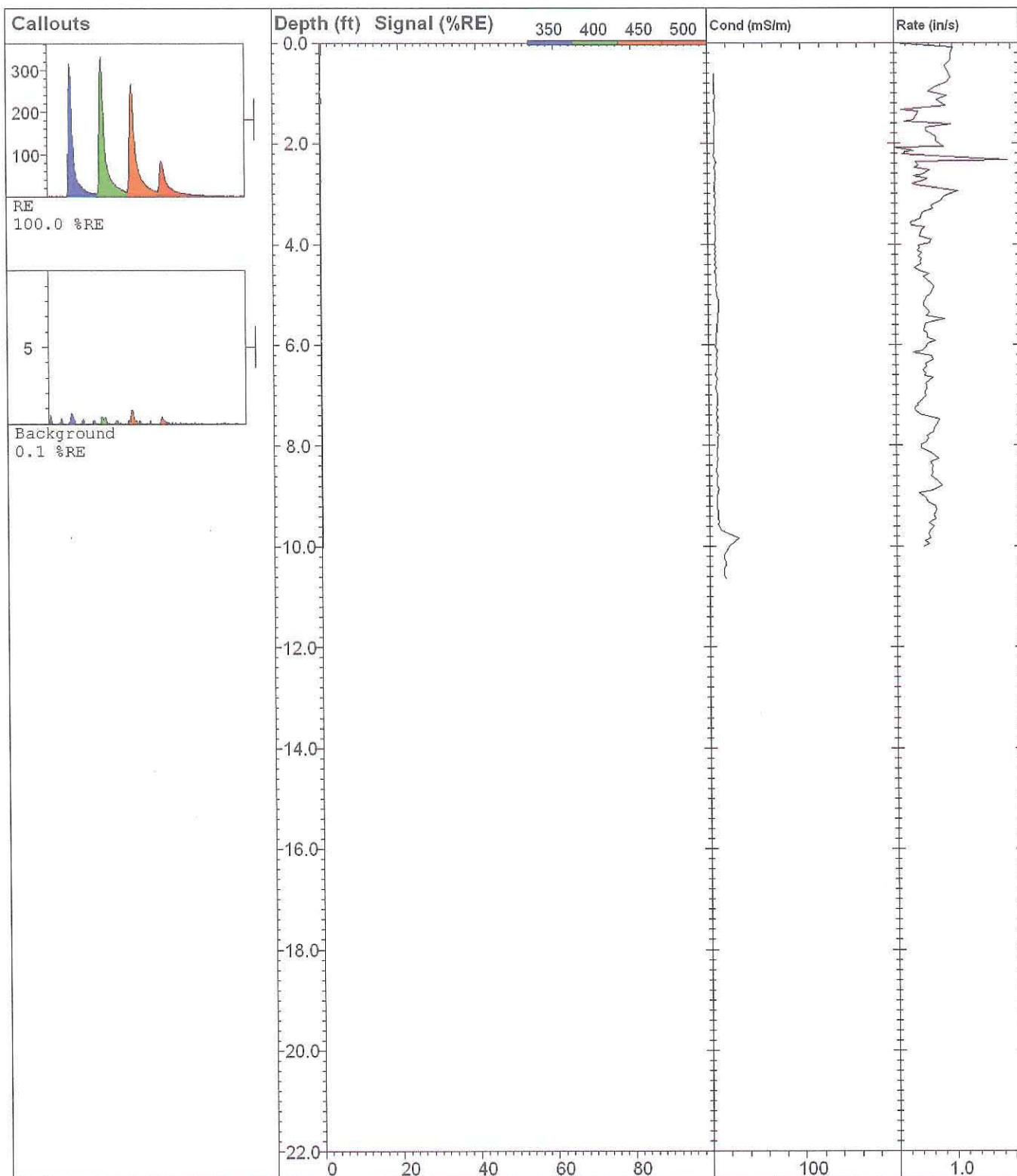
Longitude / Fix:
Unavailable / NA

Max signal:
3.9 %RE @ 0.00 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-28 14:50 EDT



UV-009

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
10.02 ft

Client / Job:
Brownfield Restoration G

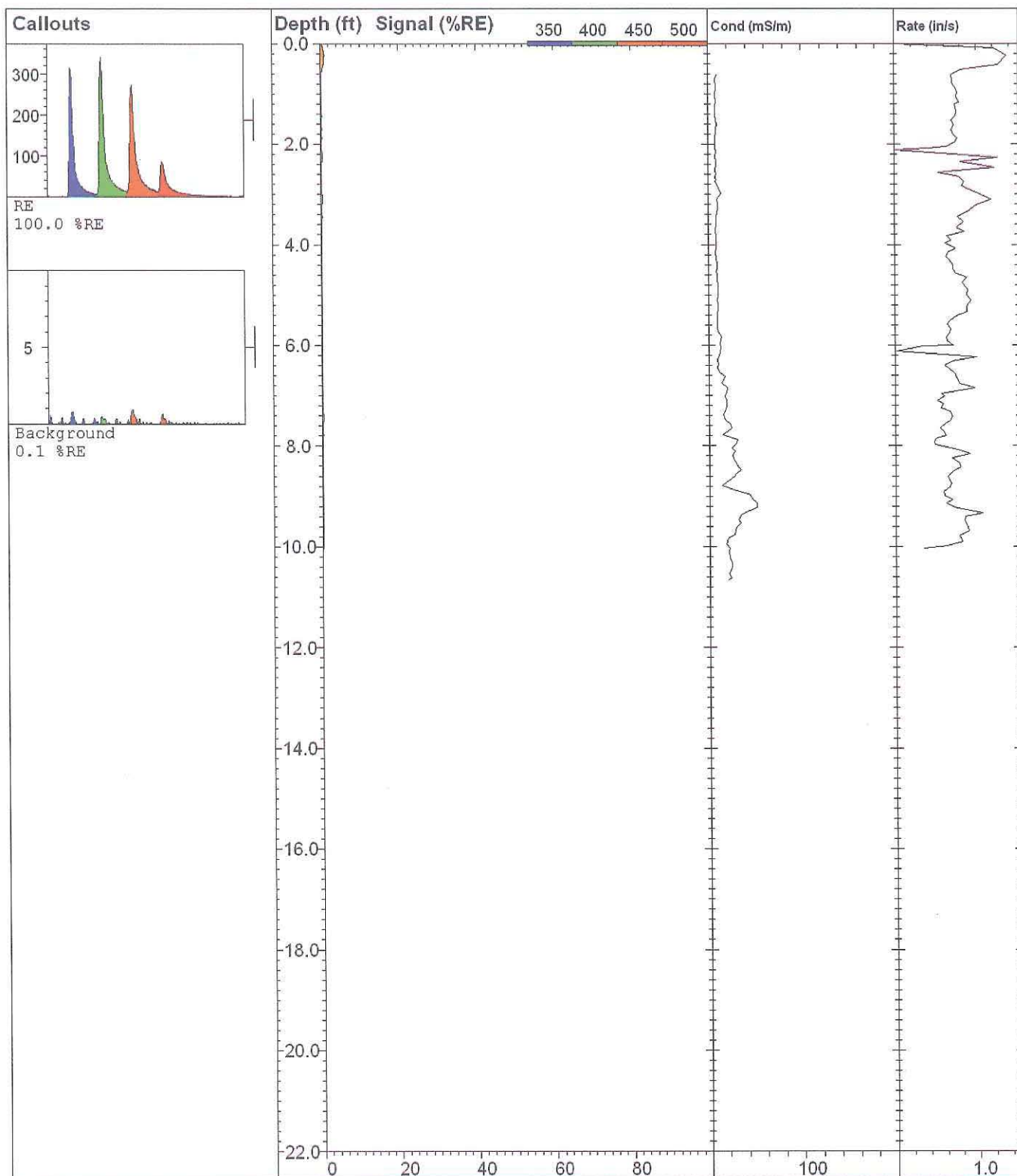
Longitude / Fix:
Unavailable / NA

Max signal:
0.5 %RE @ 1.14 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-28 15:07 EDT



UV-010

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

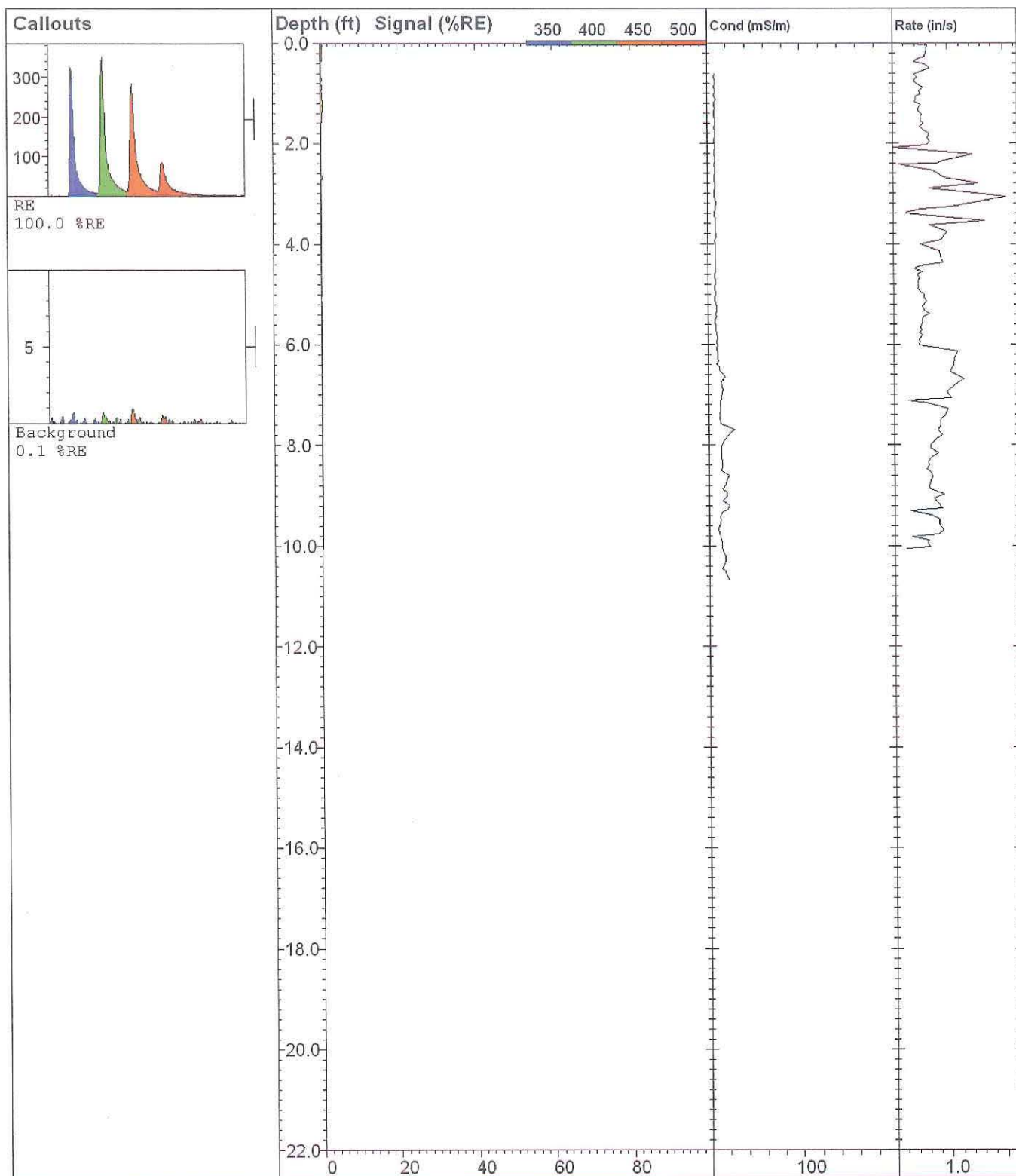
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
10.04 ft

Max signal:
1.0 %RE @ 0.24 ft

Date & Time:
2012-08-28 15:26 EDT



UV-011

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

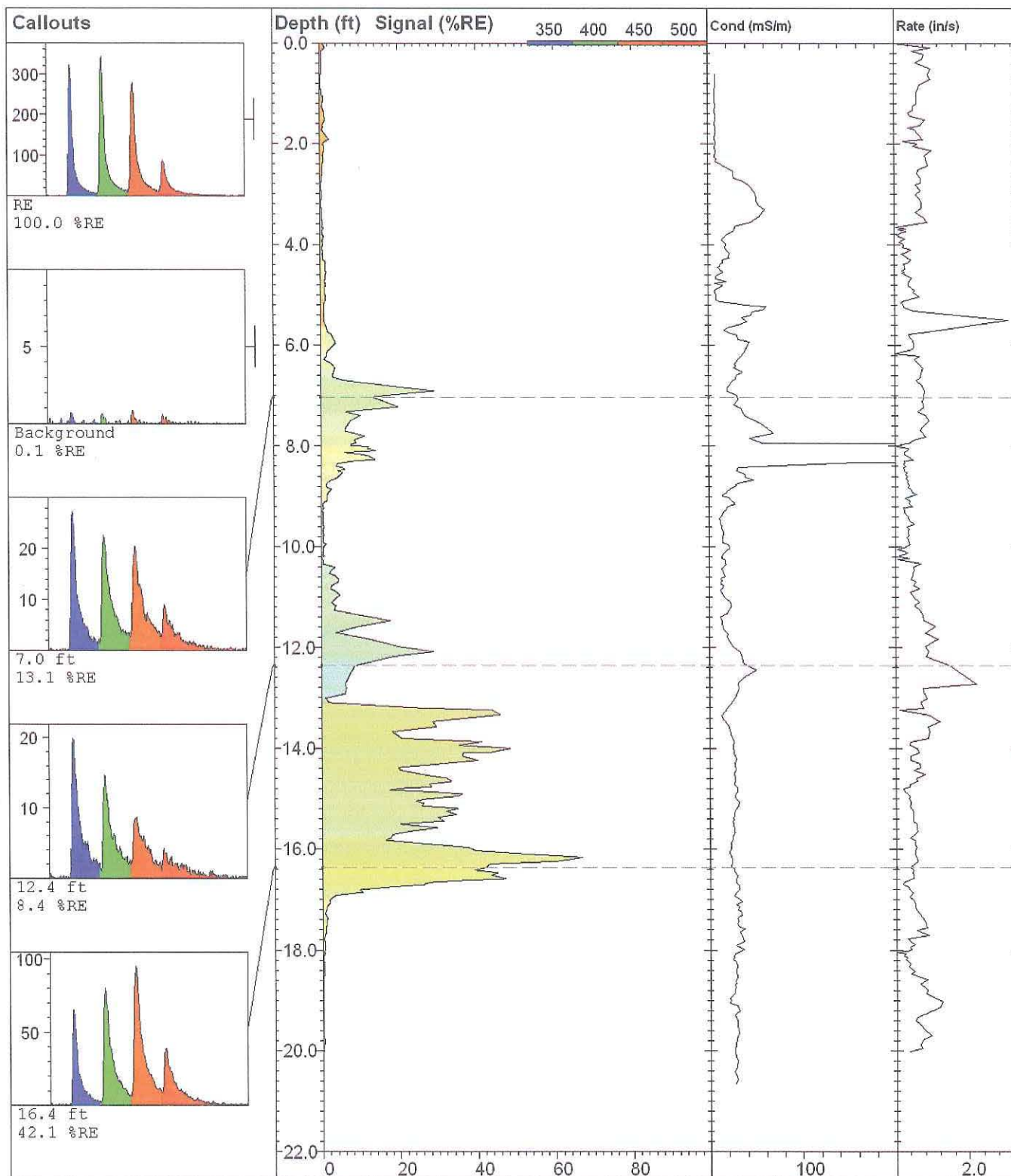
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
10.05 ft

Max signal:
0.6 %RE @ 1.17 ft

Date & Time:
2012-08-28 15:43 EDT



UV-012

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

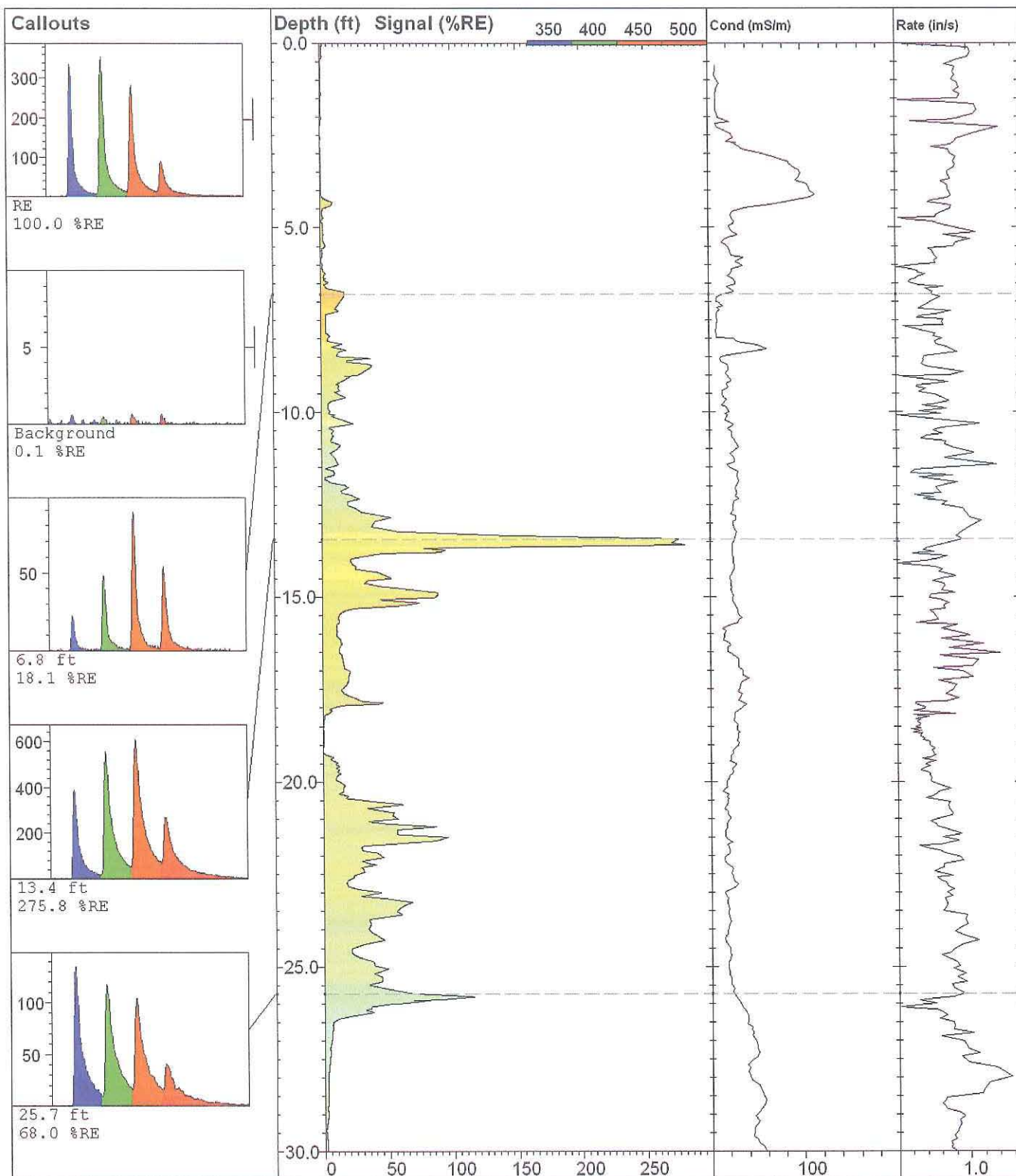
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
20.03 ft

Max signal:
66.9 %RE @ 16.16 ft

Date & Time:
2012-08-28 16:12 EDT



UV-013

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
30.07 ft

Client / Job:
Brownfield Restoration G

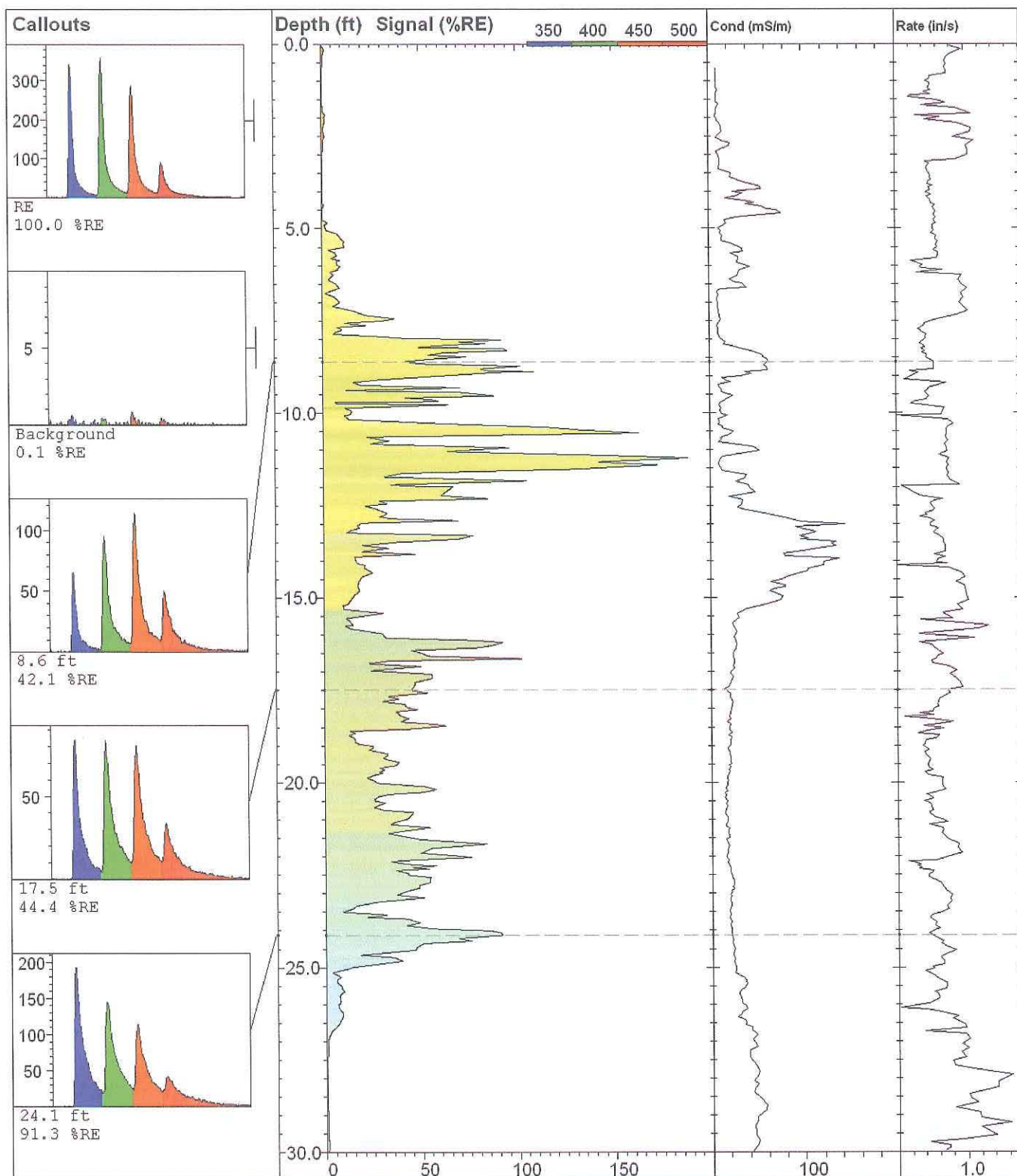
Longitude / Fix:
Unavailable / NA

Max signal:
280.7 %RE @ 13.60 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-28 16:40 EDT



UV-014

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

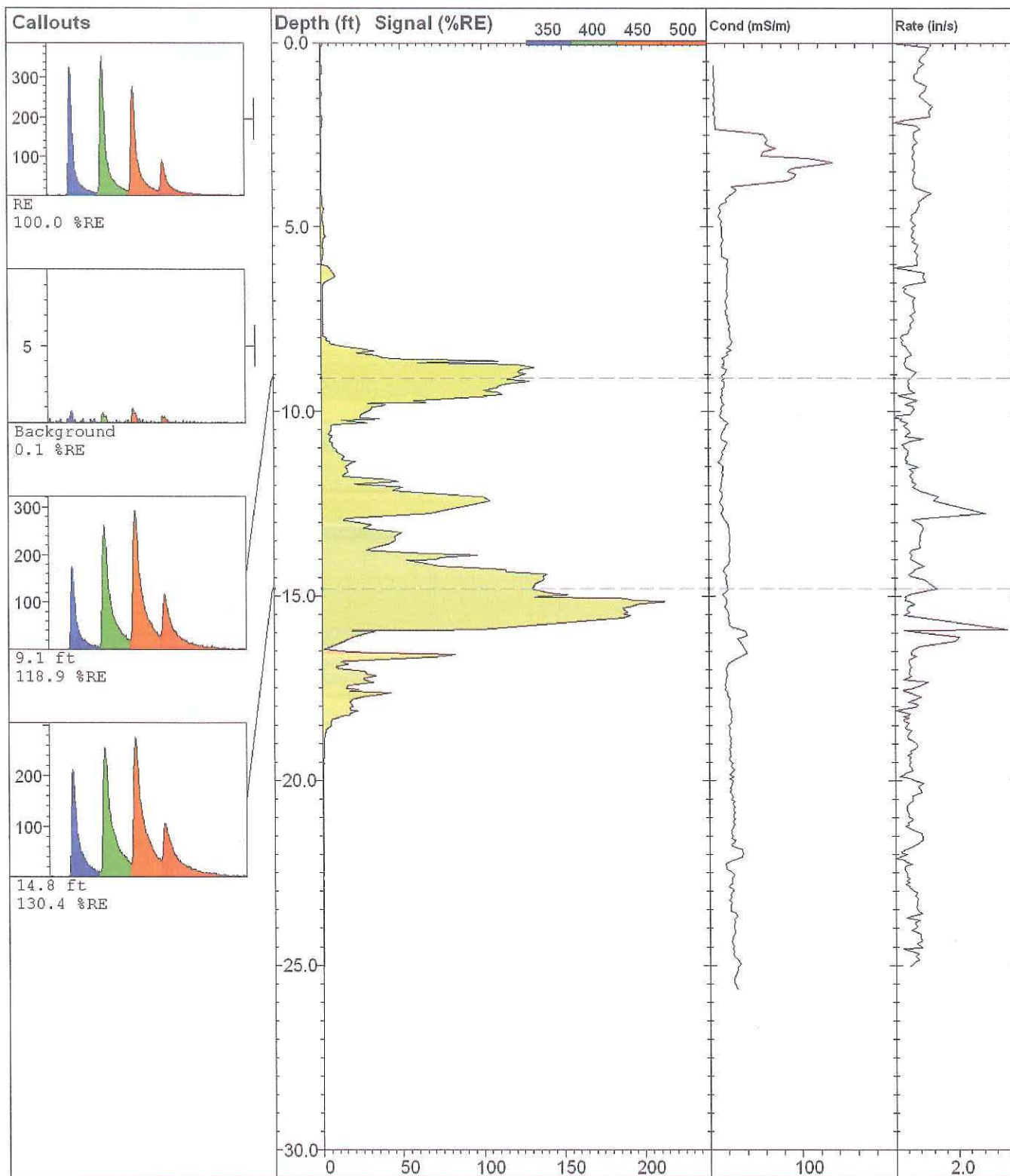
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
30.06 ft

Max signal:
189.2 %RE @ 11.22 ft

Date & Time:
2012-08-28 17:19 EDT



UV-015

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

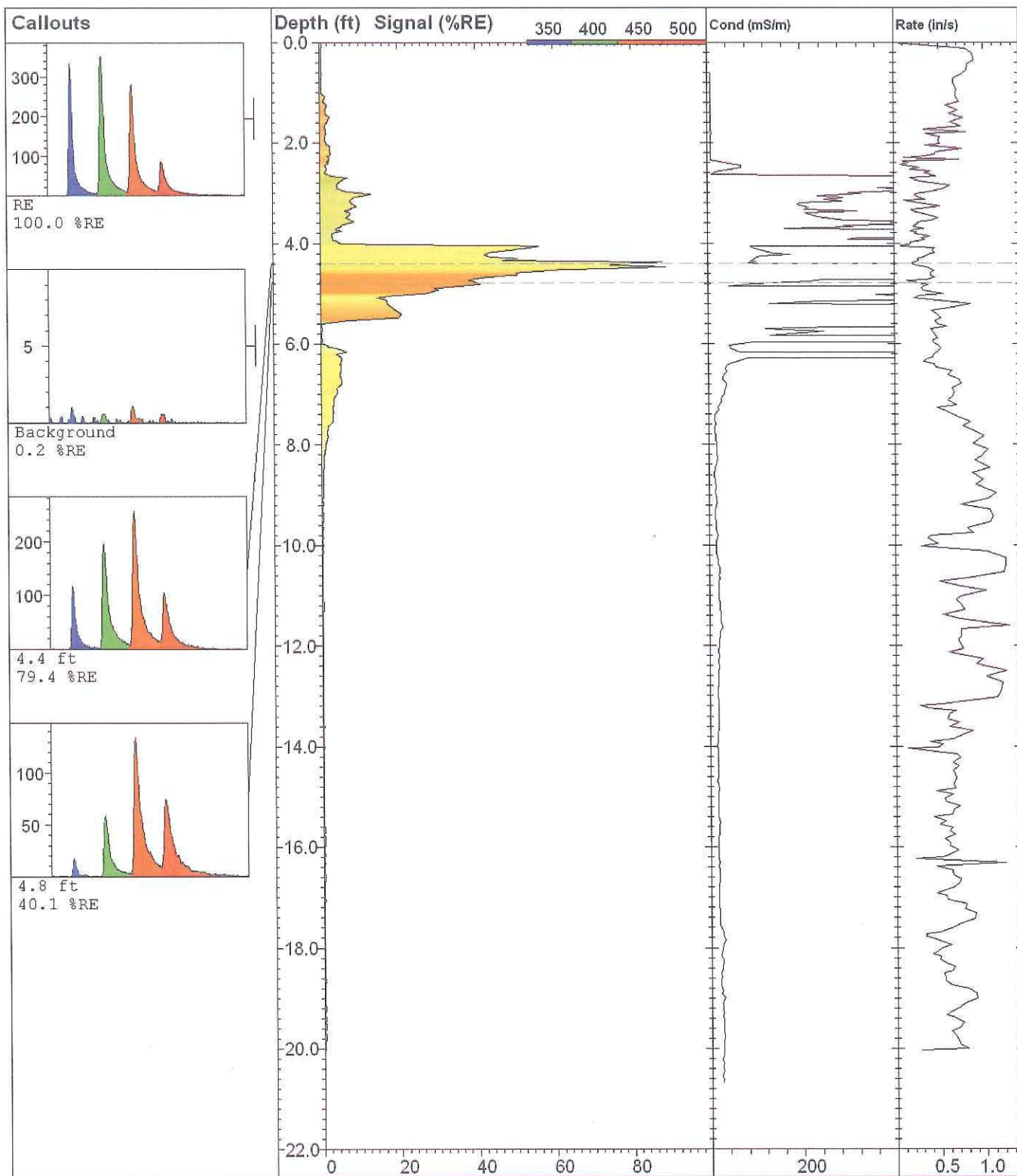
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
25.03 ft

Max signal:
213.0 %RE @ 15.14 ft

Date & Time:
2012-08-28 17:54 EDT



UV-MW138

UVOST By Dakota
www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
20.04 ft

Client / Job:
Brownfield Restoration G

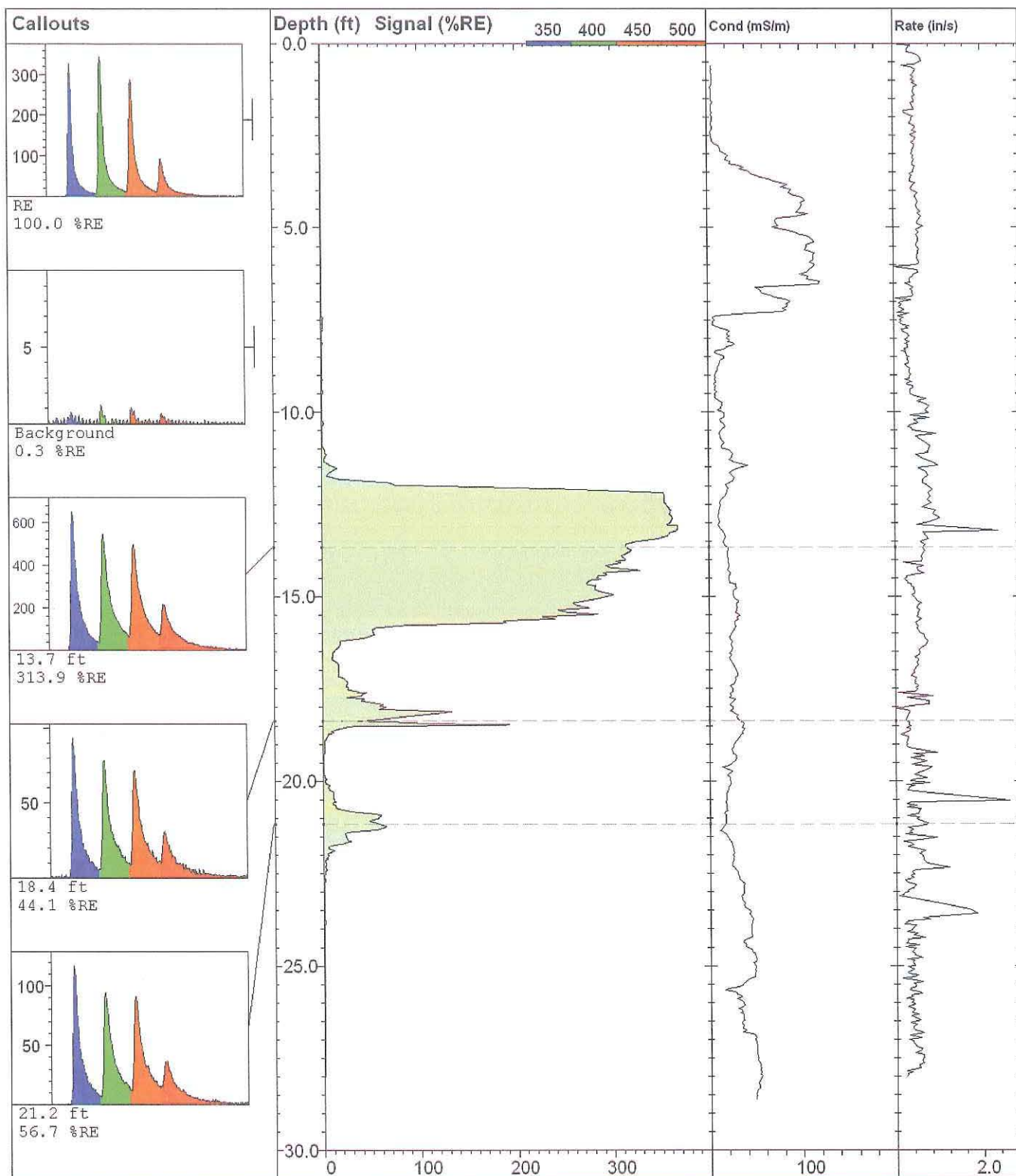
Longitude / Fix:
Unavailable / NA

Max signal:
89.1 %RE @ 4.47 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-28 12:00 EDT



UV-031

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

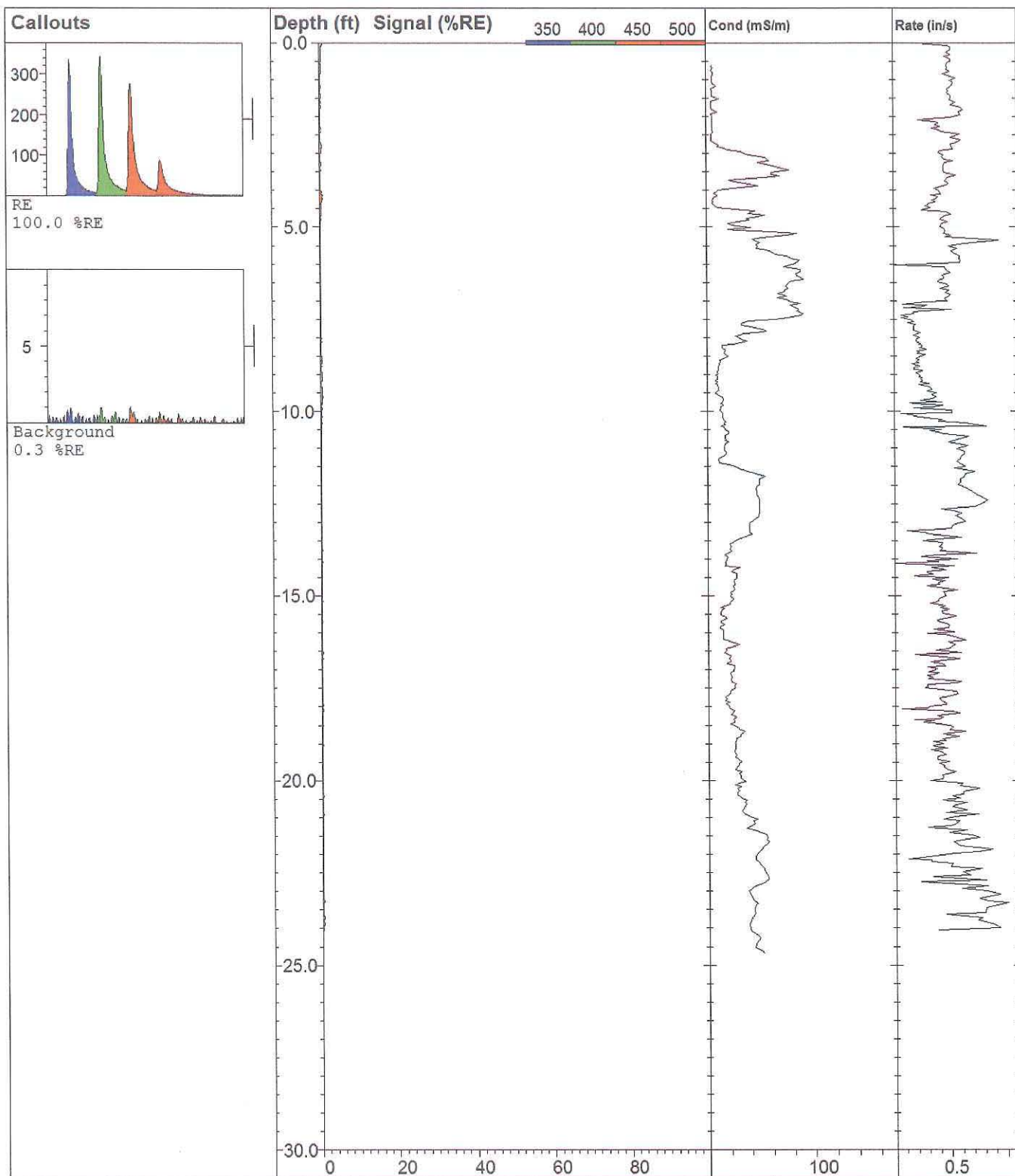
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
28.01 ft

Max signal:
367.4 %RE @ 13.08 ft

Date & Time:
2012-08-30 08:49 EDT



UV-032

Site:
J+L Lagoons

Client:
Brownfield Restoration G

Job:
093-OHDS-12

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
AK/BG/UVOST1013

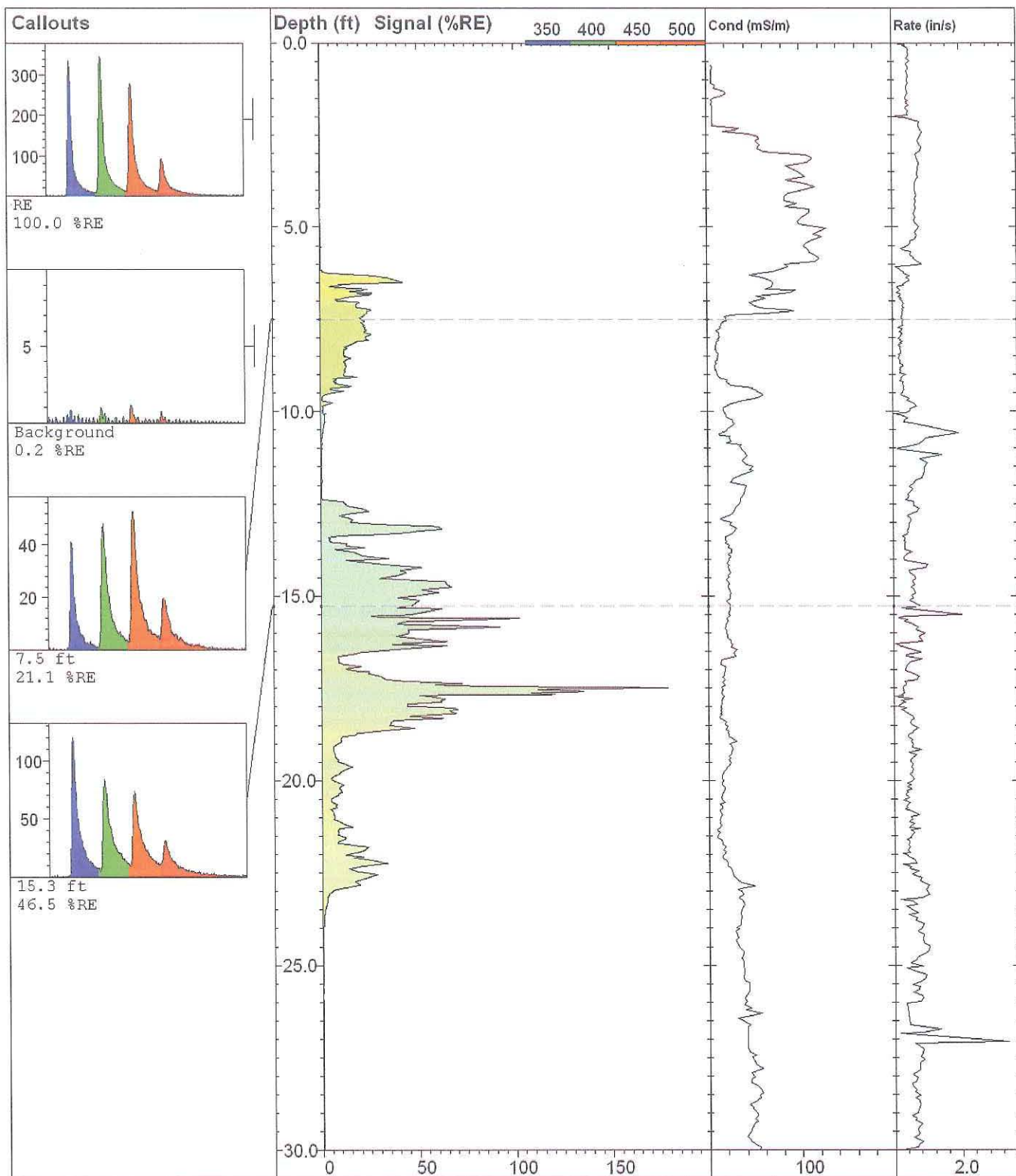
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
24.05 ft

Max signal:
0.9 % @ 0.02 ft

Date & Time:
2012-08-30 09:28 EDT



UV-033

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

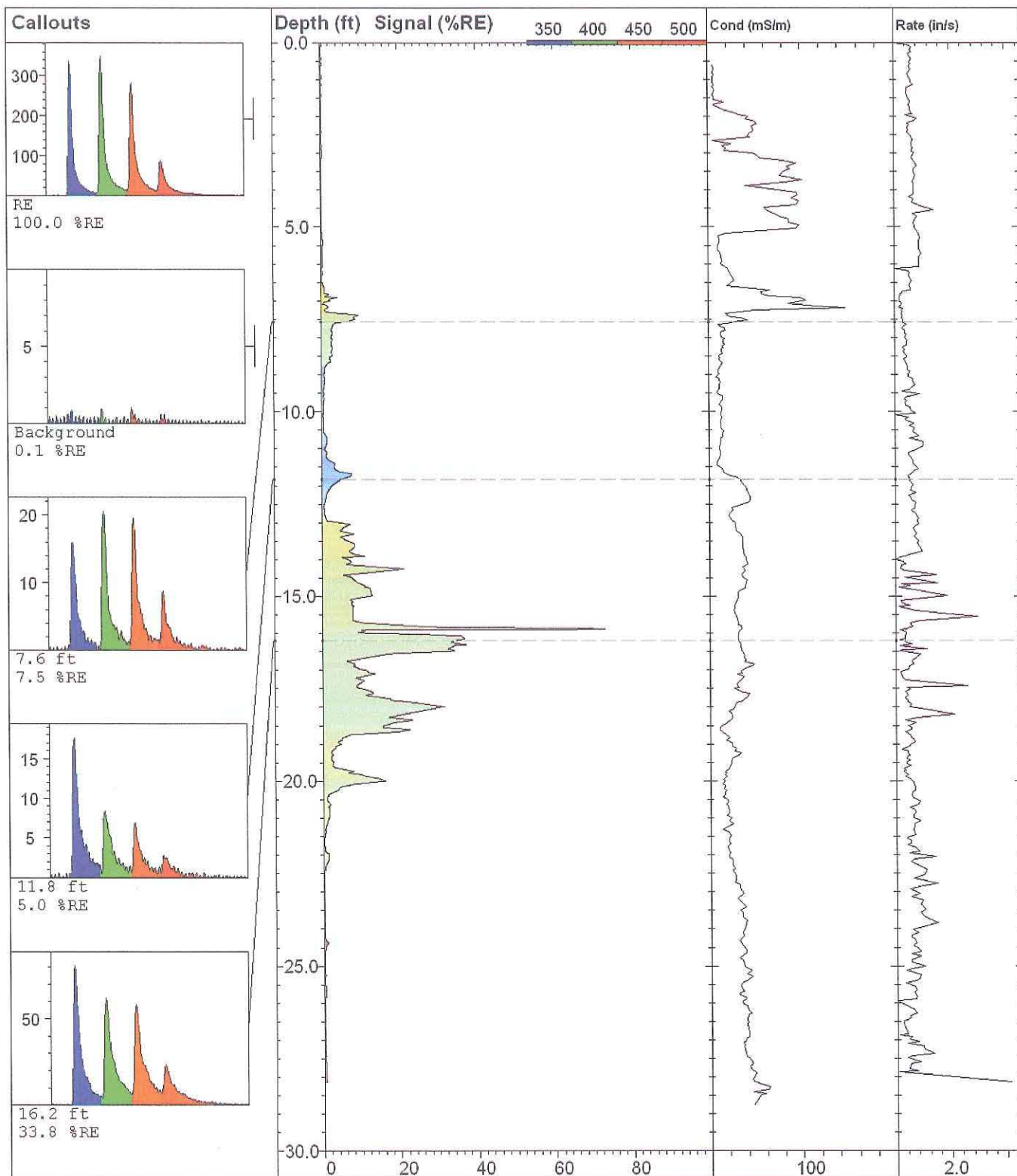
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
30.00 ft

Max signal:
182.2 %RE @ 17.49 ft

Date & Time:
2012-08-30 10:03 EDT



UV-034

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

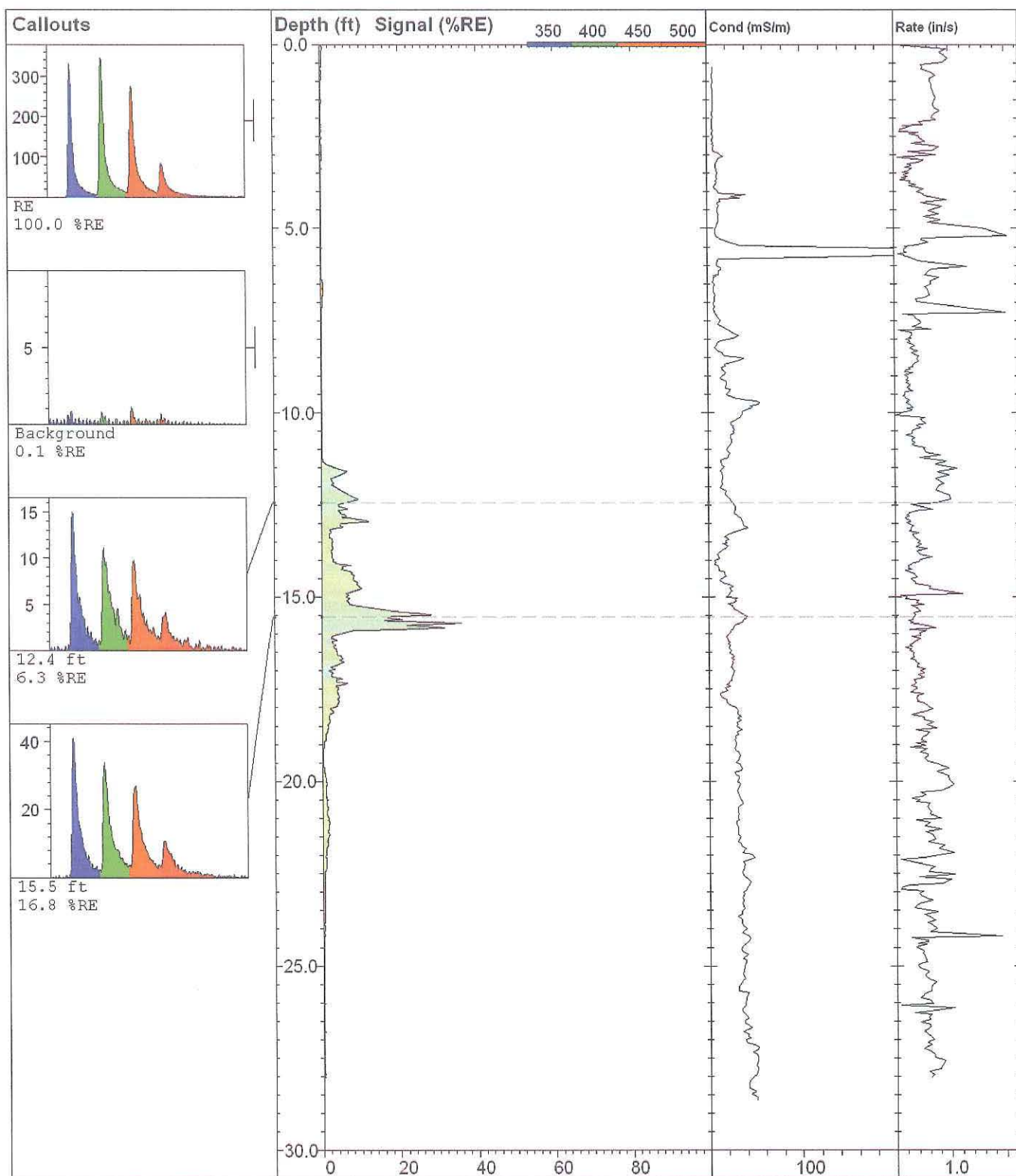
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
28.13 ft

Max signal:
73.5 %RE @ 15.87 ft

Date & Time:
2012-08-30 10:47 EDT



UV-035

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
28.03 ft

Client / Job:
Brownfield Restoration G

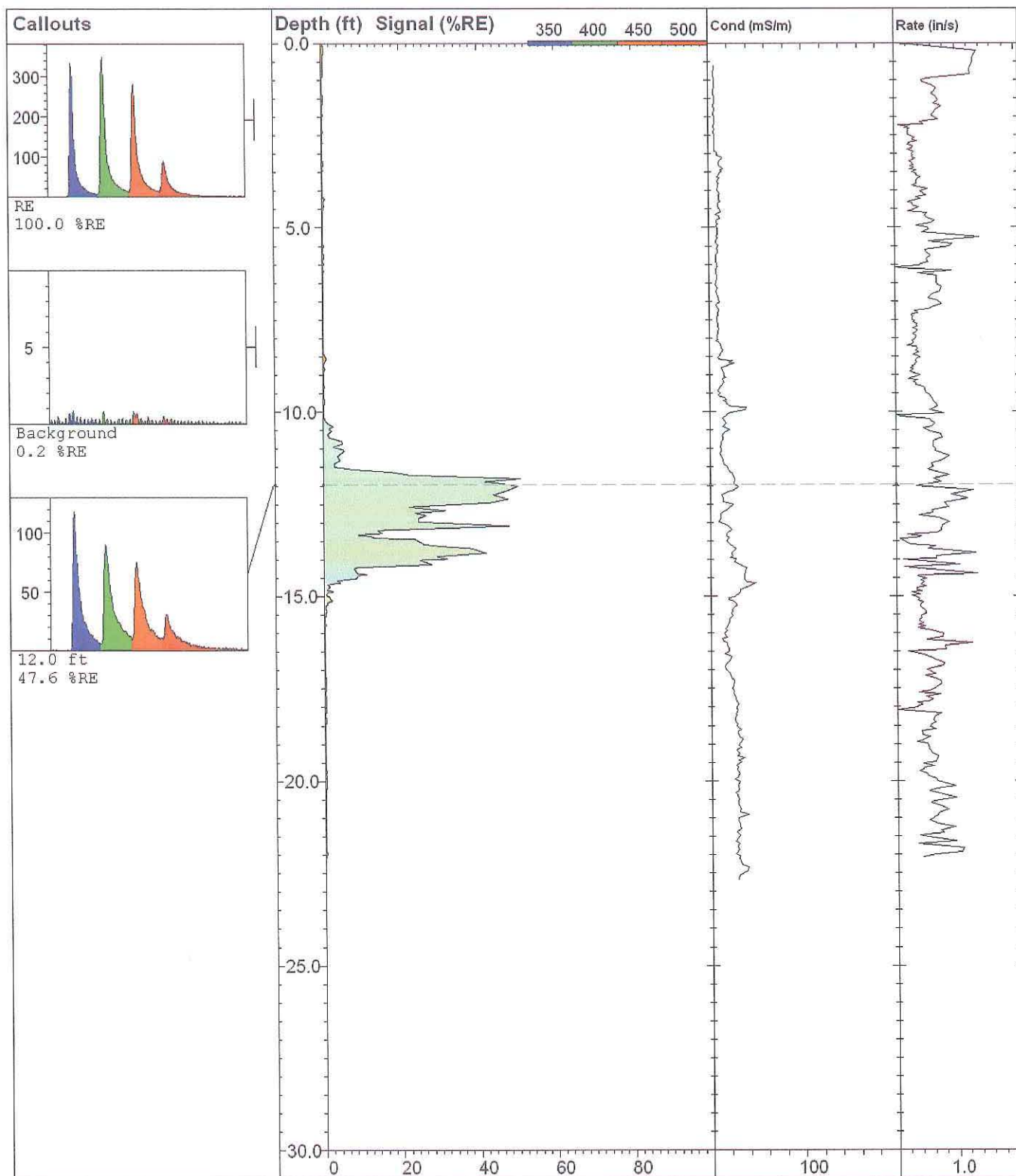
Longitude / Fix:
Unavailable / NA

Max signal:
36.2 %RE @ 15.70 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-30 11:24 EDT



UV-036

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

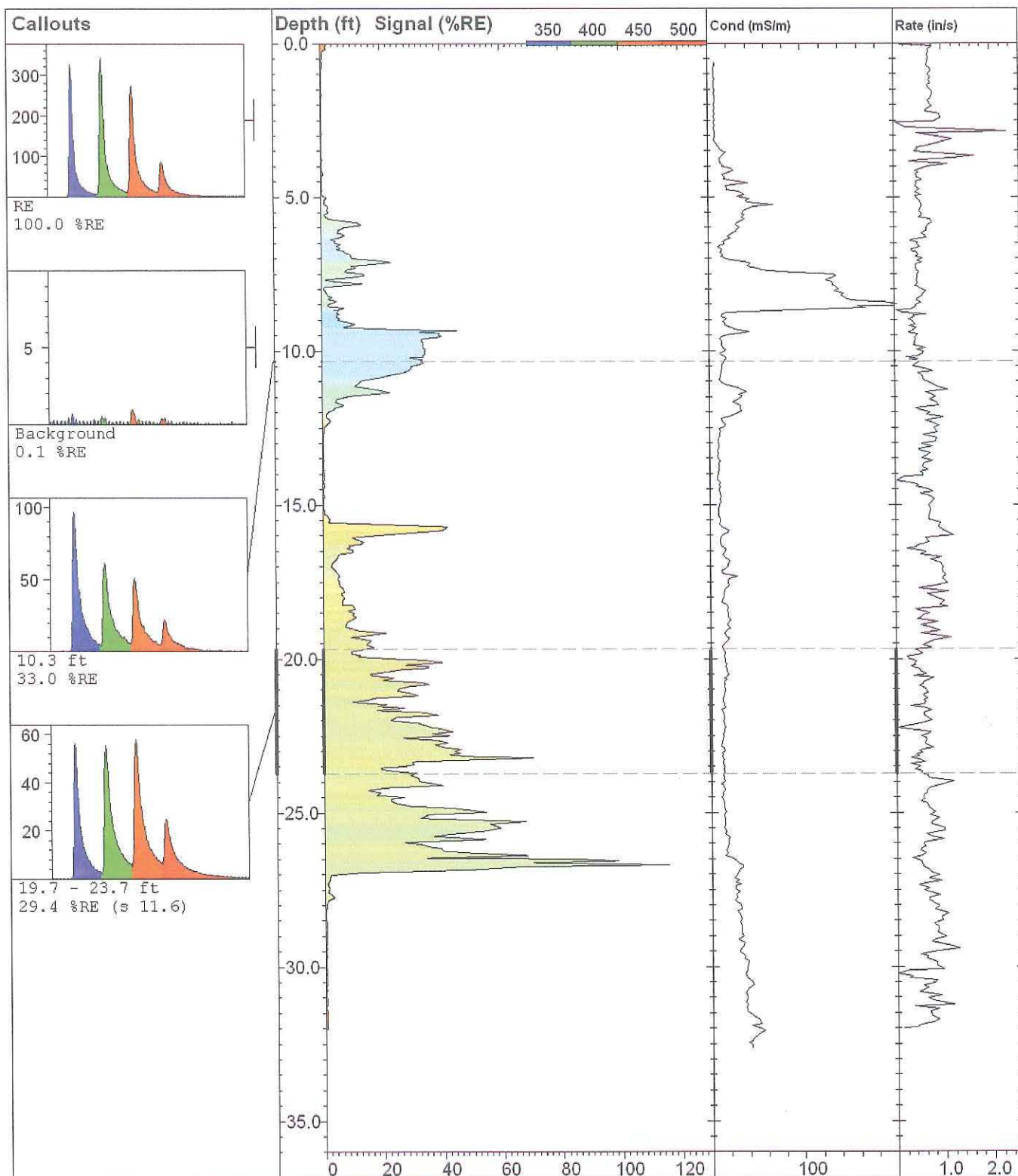
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
22.06 ft

Max signal:
51.1 %RE @ 11.81 ft

Date & Time:
2012-08-30 12:04 EDT



UV-037

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

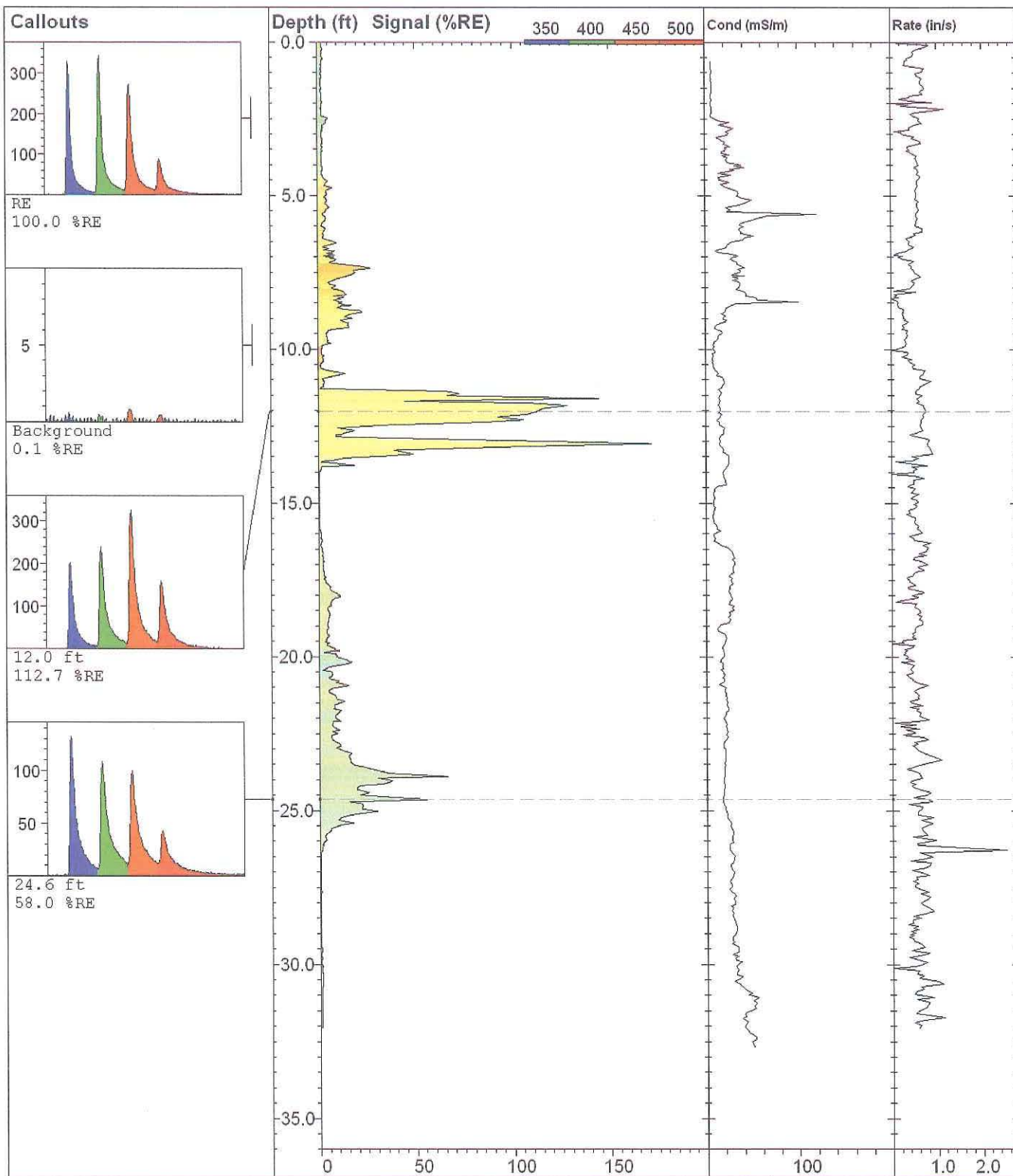
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
32.02 ft

Max signal:
116.3 %RE @ 26.70 ft

Date & Time:
2012-08-30 13:38 EDT



UV-038

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

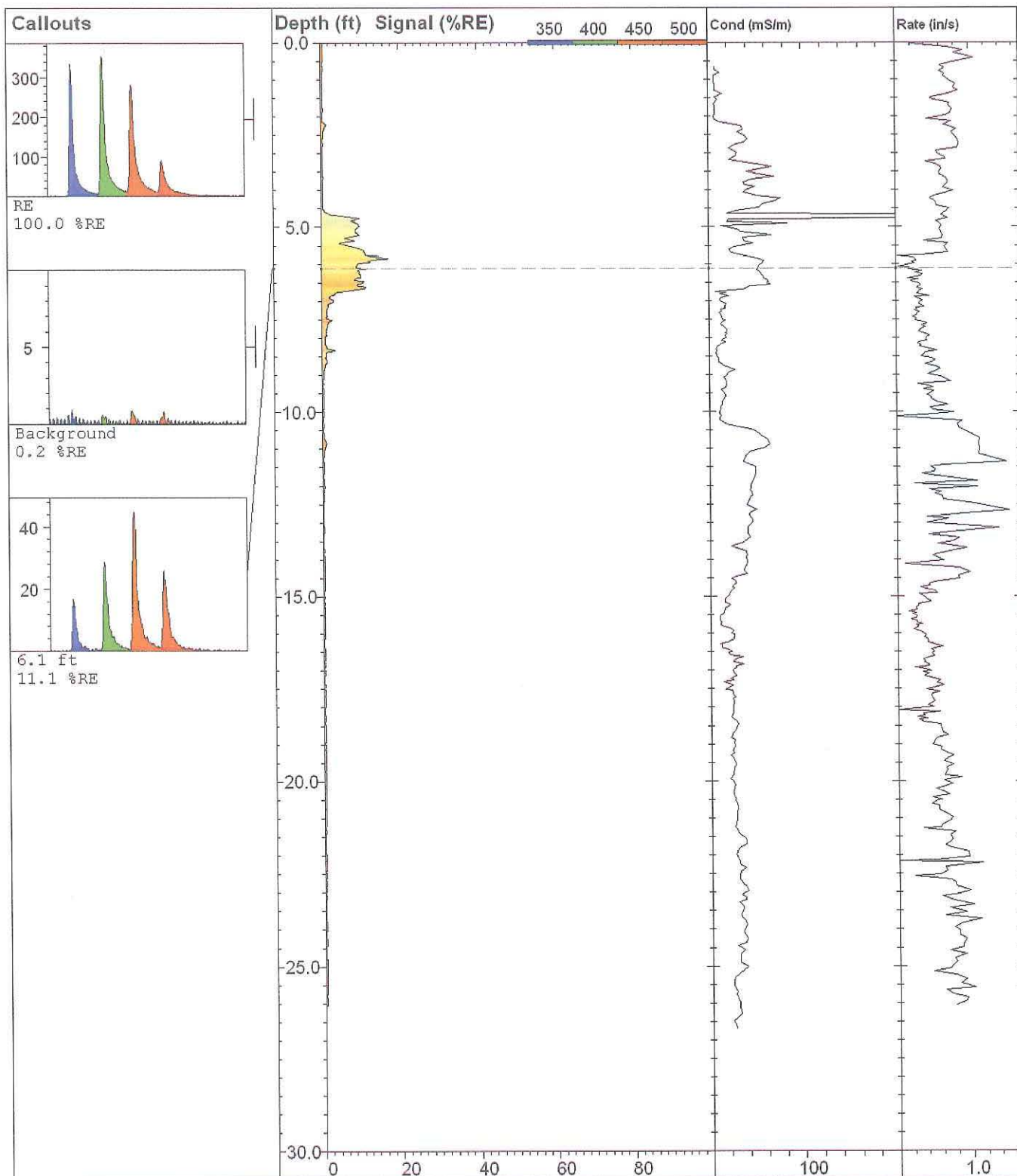
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
32.06 ft

Max signal:
173.5 %RE @ 13.07 ft

Date & Time:
2012-08-30 14:43 EDT



UV-039

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
26.06 ft

Client / Job:
Brownfield Restoration G

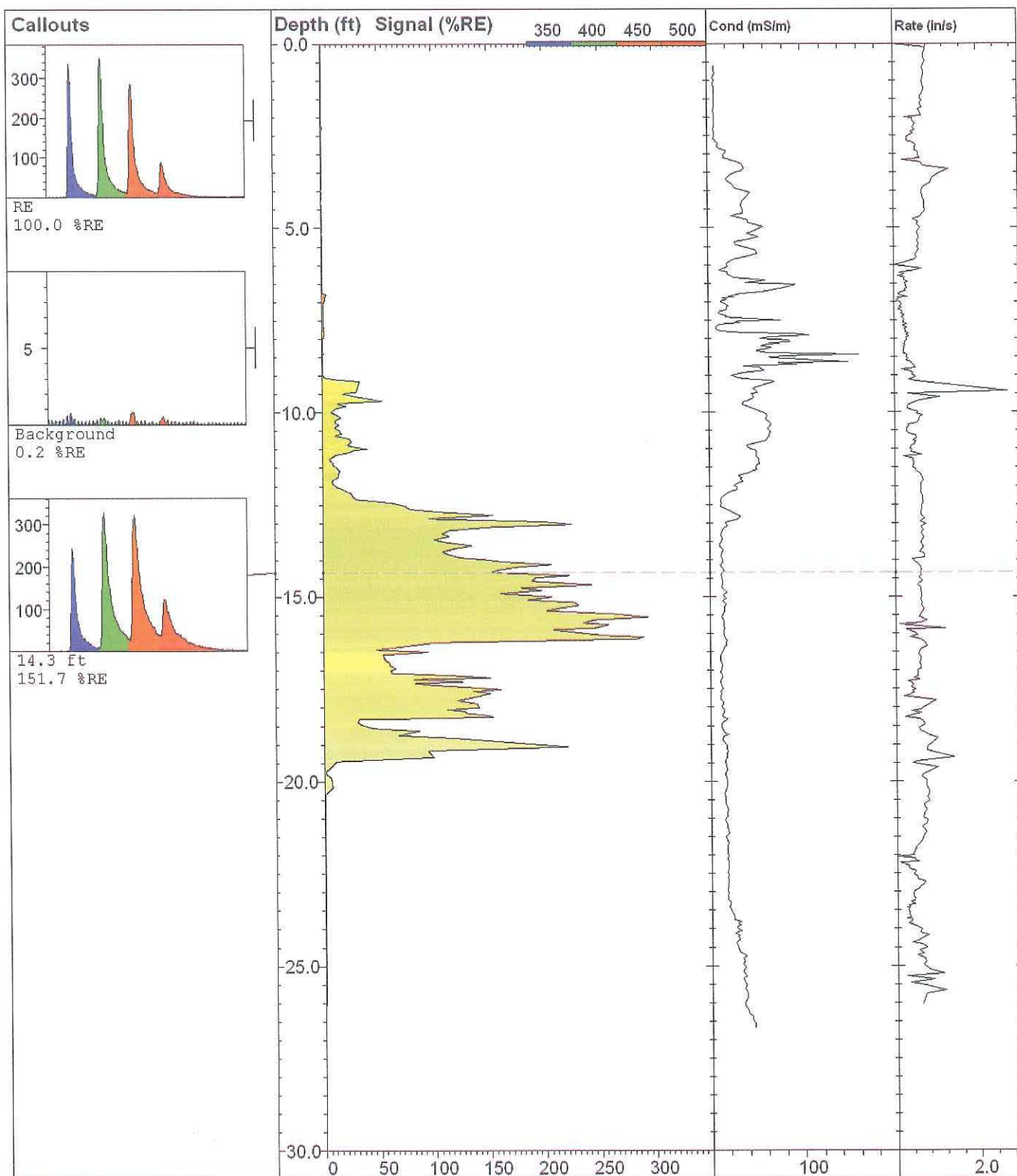
Longitude / Fix:
Unavailable / NA

Max signal:
17.1 %RE @ 5.86 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-30 15:29 EDT



UV-040

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

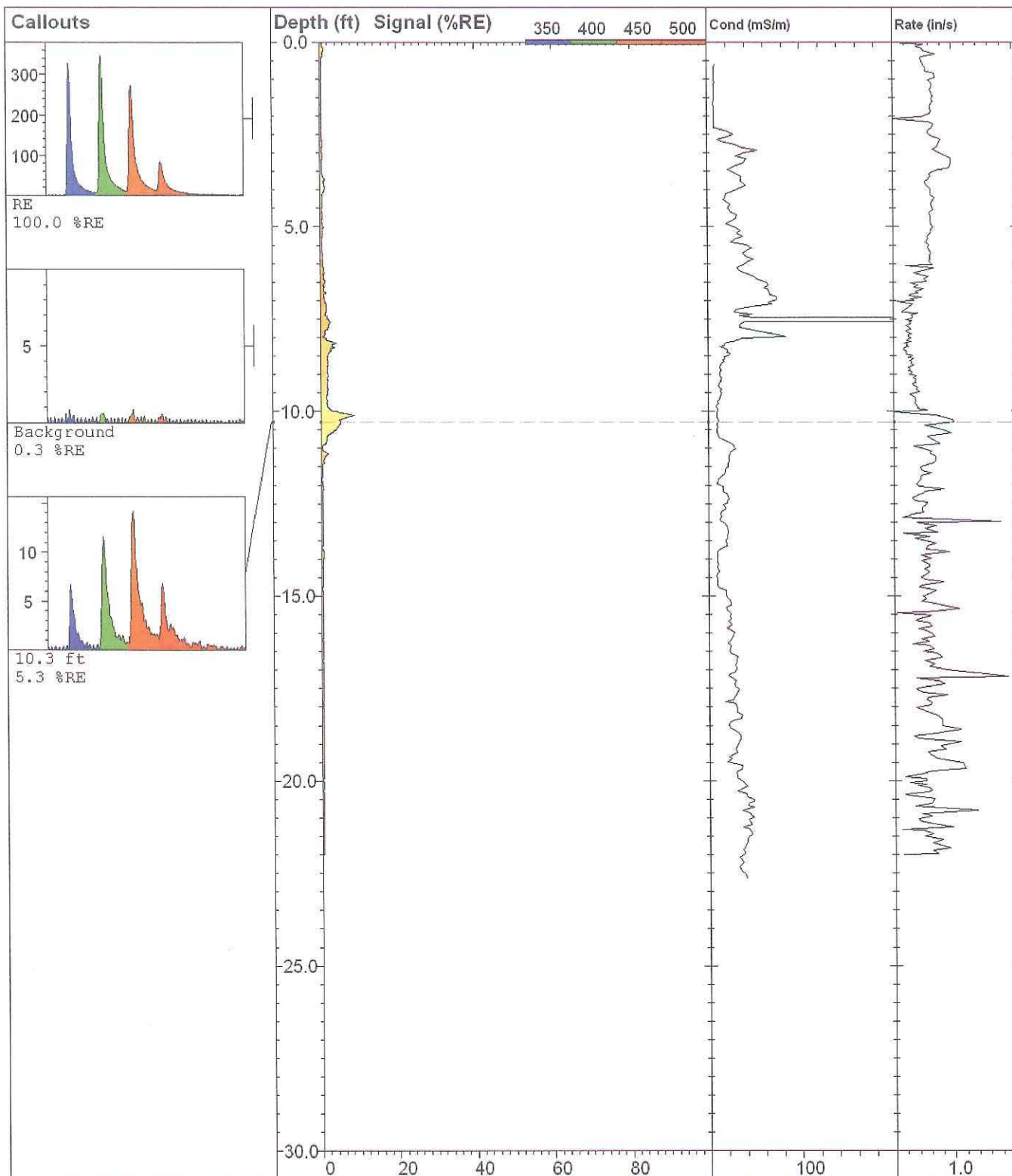
Elevation:
Unavailable

UVOST By Dakota
www.DakotaTechnologies.com

Final depth:
26.05 ft

Max signal:
294.7 %RE @ 15.55 ft

Date & Time:
2012-08-30 16:13 EDT



UV-041

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
22.00 ft

Client / Job:
Brownfield Restoration G

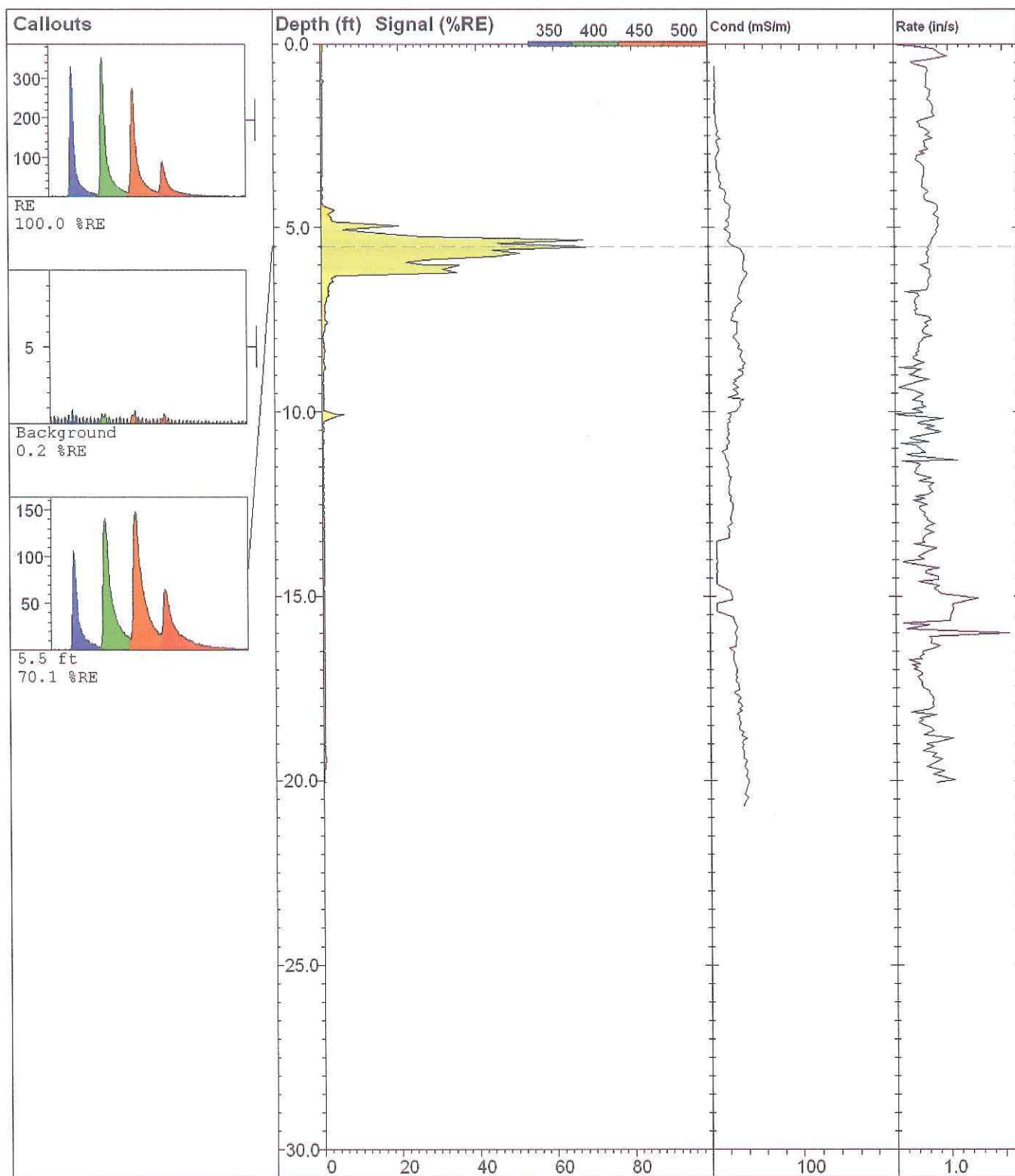
Longitude / Fix:
Unavailable / NA

Max signal:
8.5 %RE @ 10.11 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-30 16:41 EDT



UV-042

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
20.06 ft

Client / Job:
Brownfield Restoration G

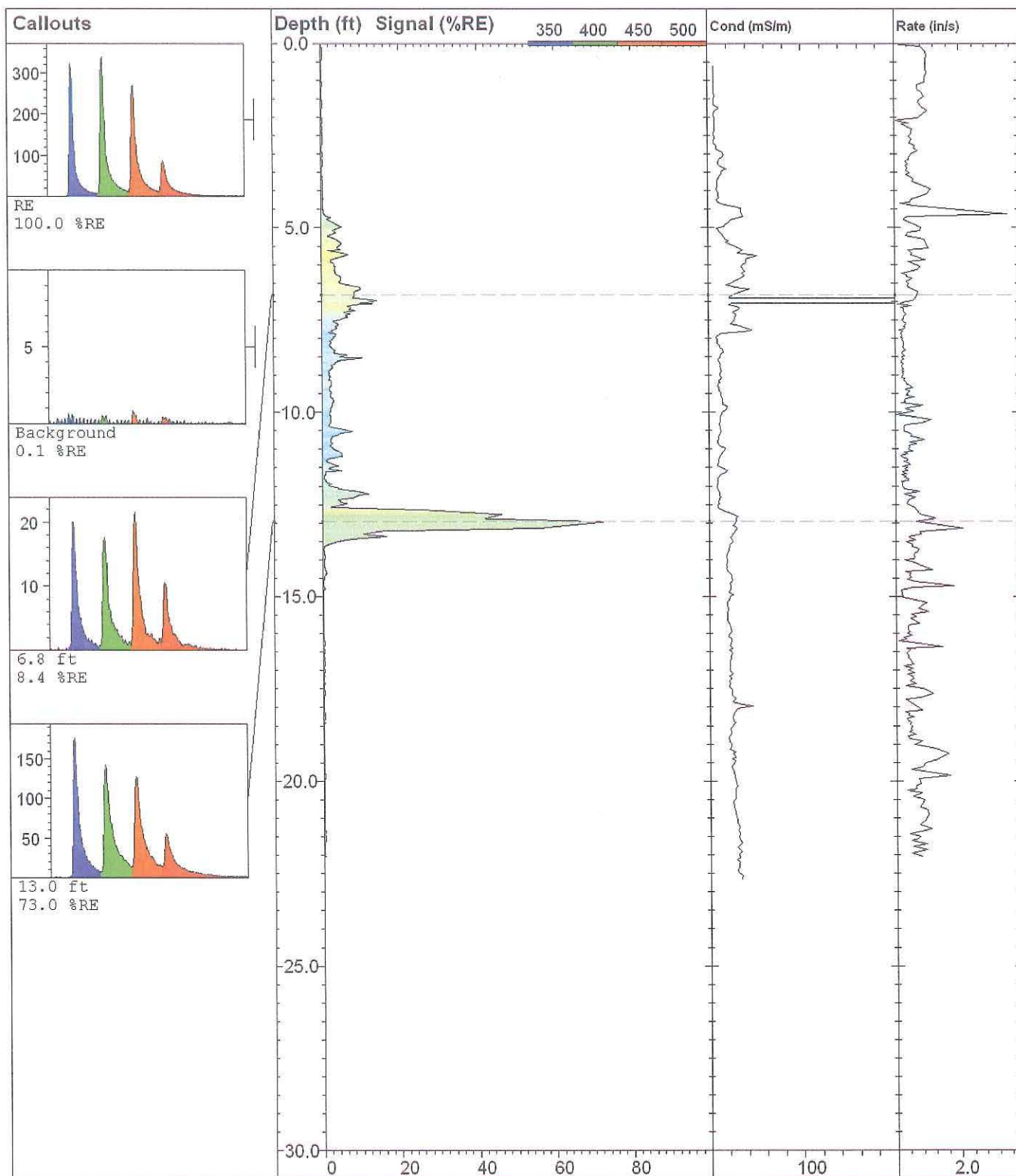
Longitude / Fix:
Unavailable / NA

Max signal:
70.1 %RE @ 5.52 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-30 17:34 EDT



UV-MW113

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

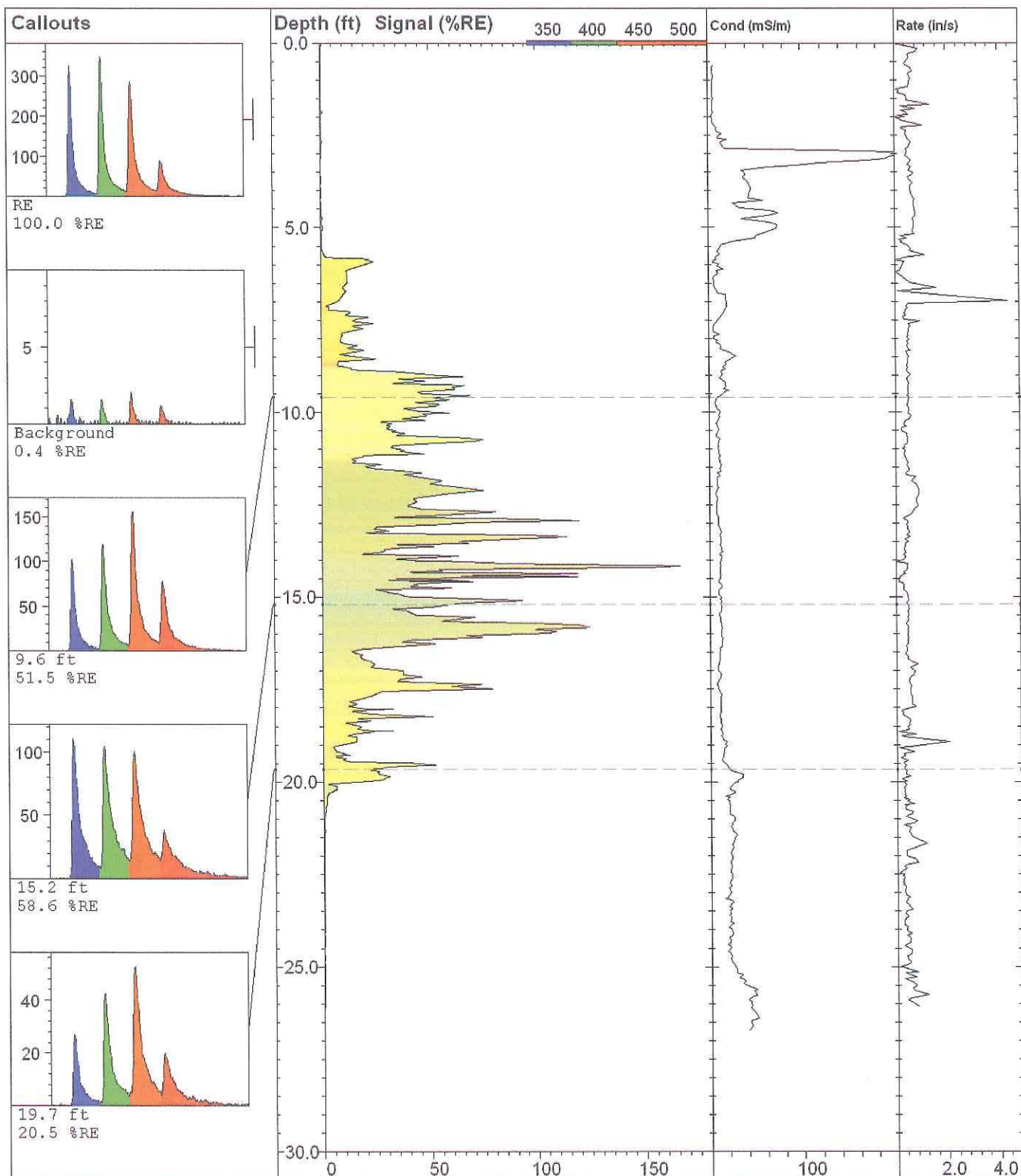
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
22.04 ft

Max signal:
73.0 %RE @ 12.97 ft

Date & Time:
2012-08-30 12:47 EDT



UV-016

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

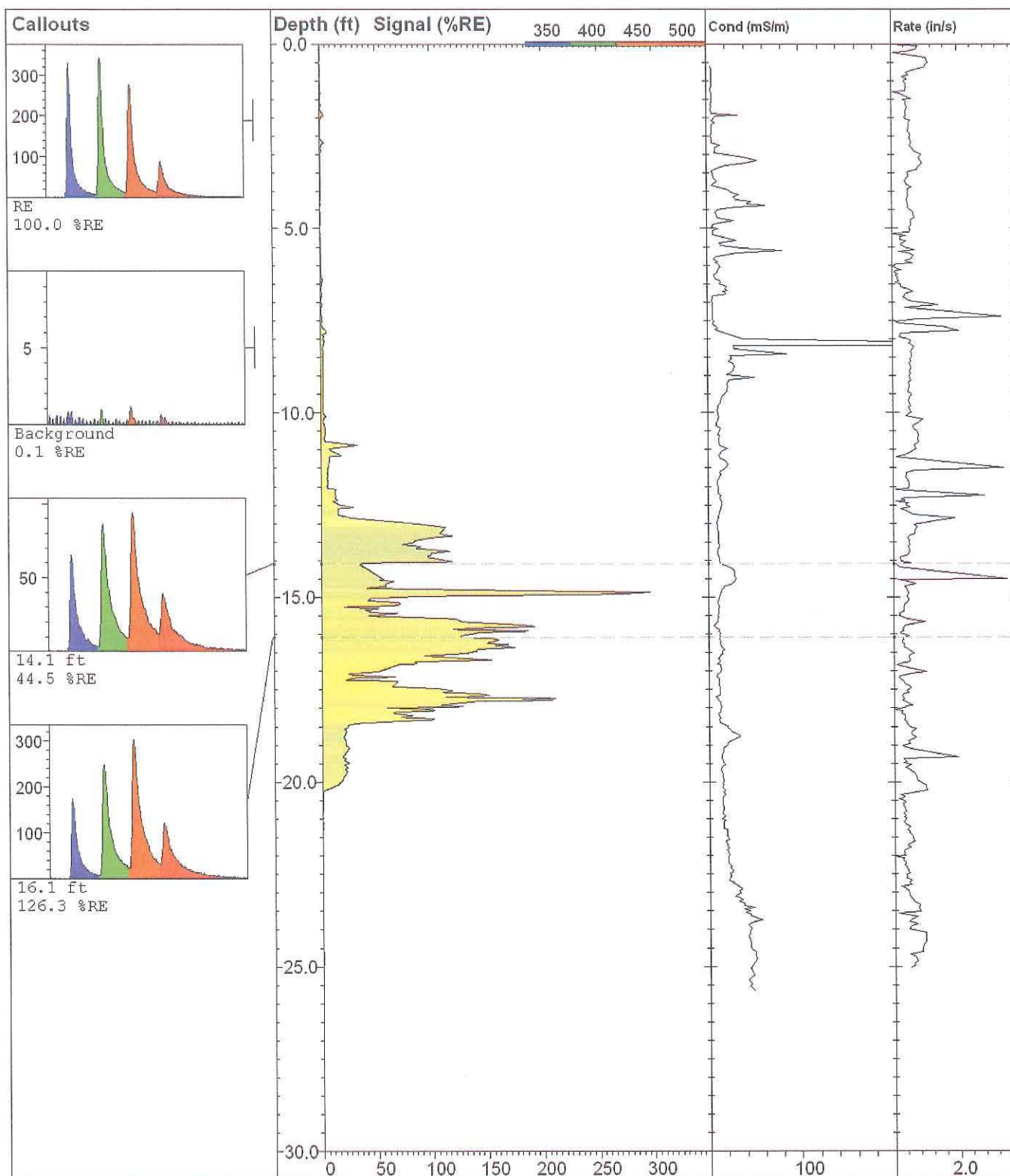
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
26.09 ft

Max signal:
166.7 %RE @ 14.16 ft

Date & Time:
2012-08-29 08:41 EDT



UV-017

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

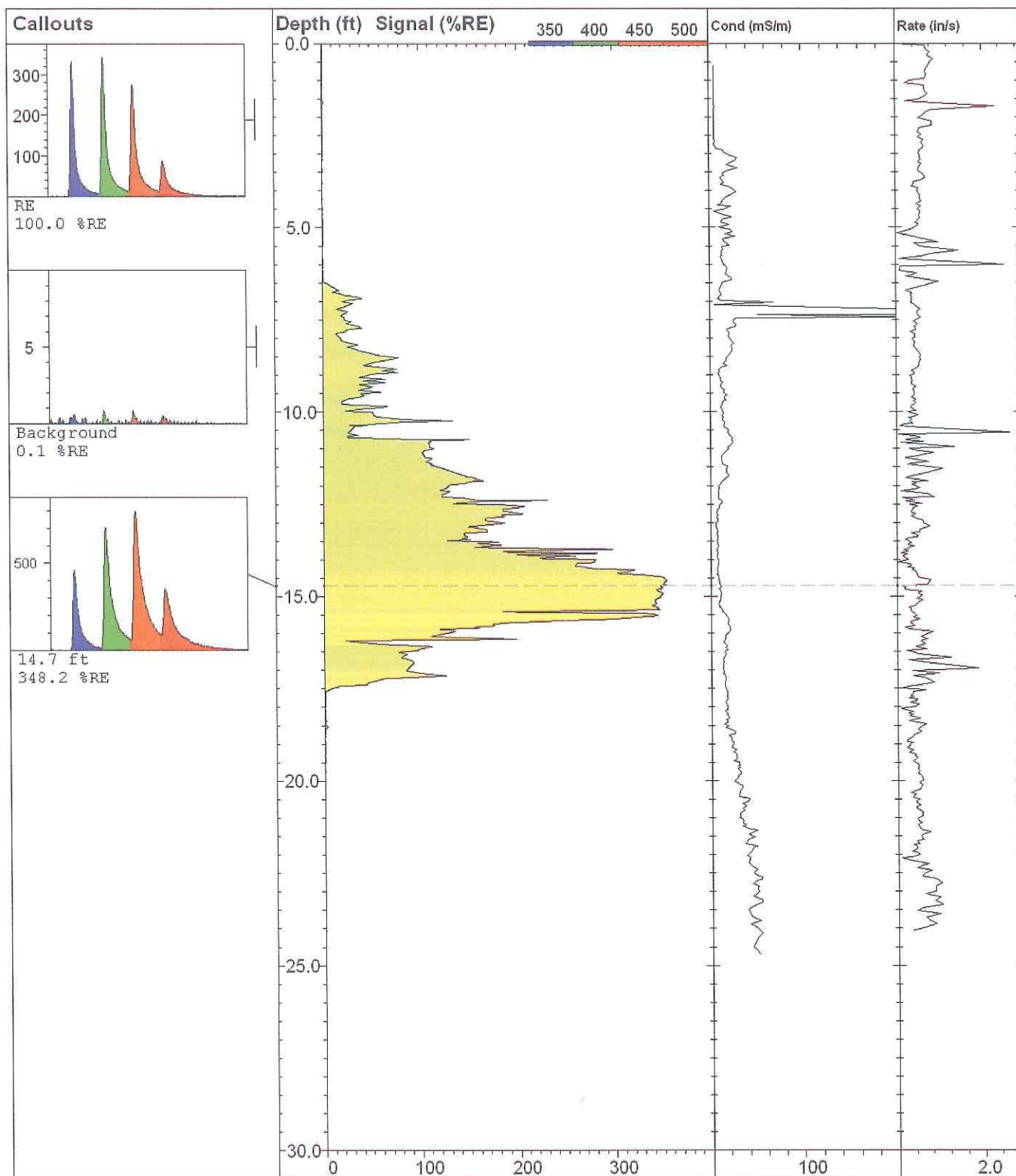
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
25.03 ft

Max signal:
296.6 %RE @ 14.86 ft

Date & Time:
2012-08-29 09:14 EDT



UV-018

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

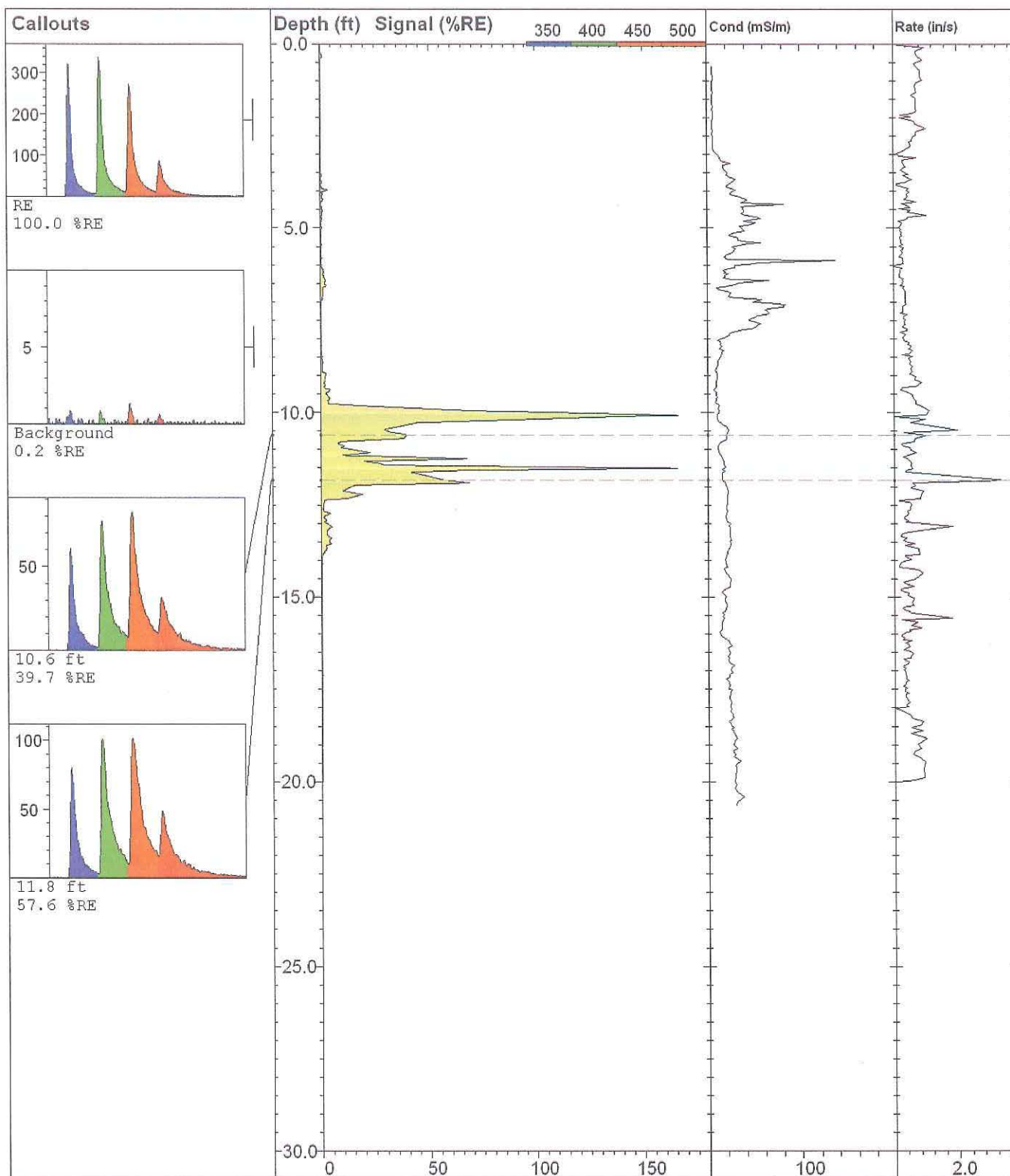
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
24.07 ft

Max signal:
354.3 %RE @ 14.56 ft

Date & Time:
2012-08-29 09:50 EDT



UV-019

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

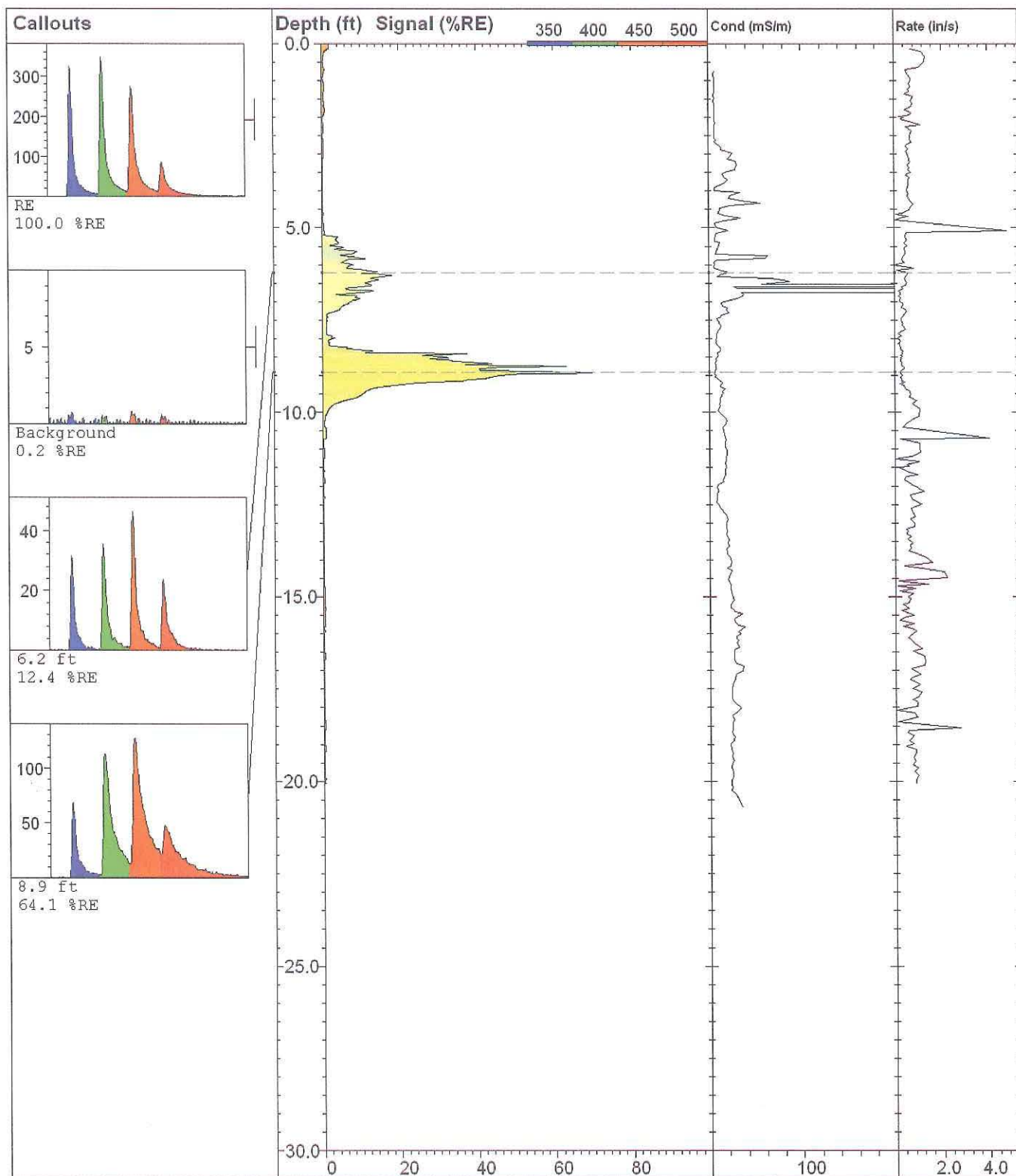
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
20.01 ft

Max signal:
166.4 %RE @ 10.08 ft

Date & Time:
2012-08-29 10:30 EDT



UV-020

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

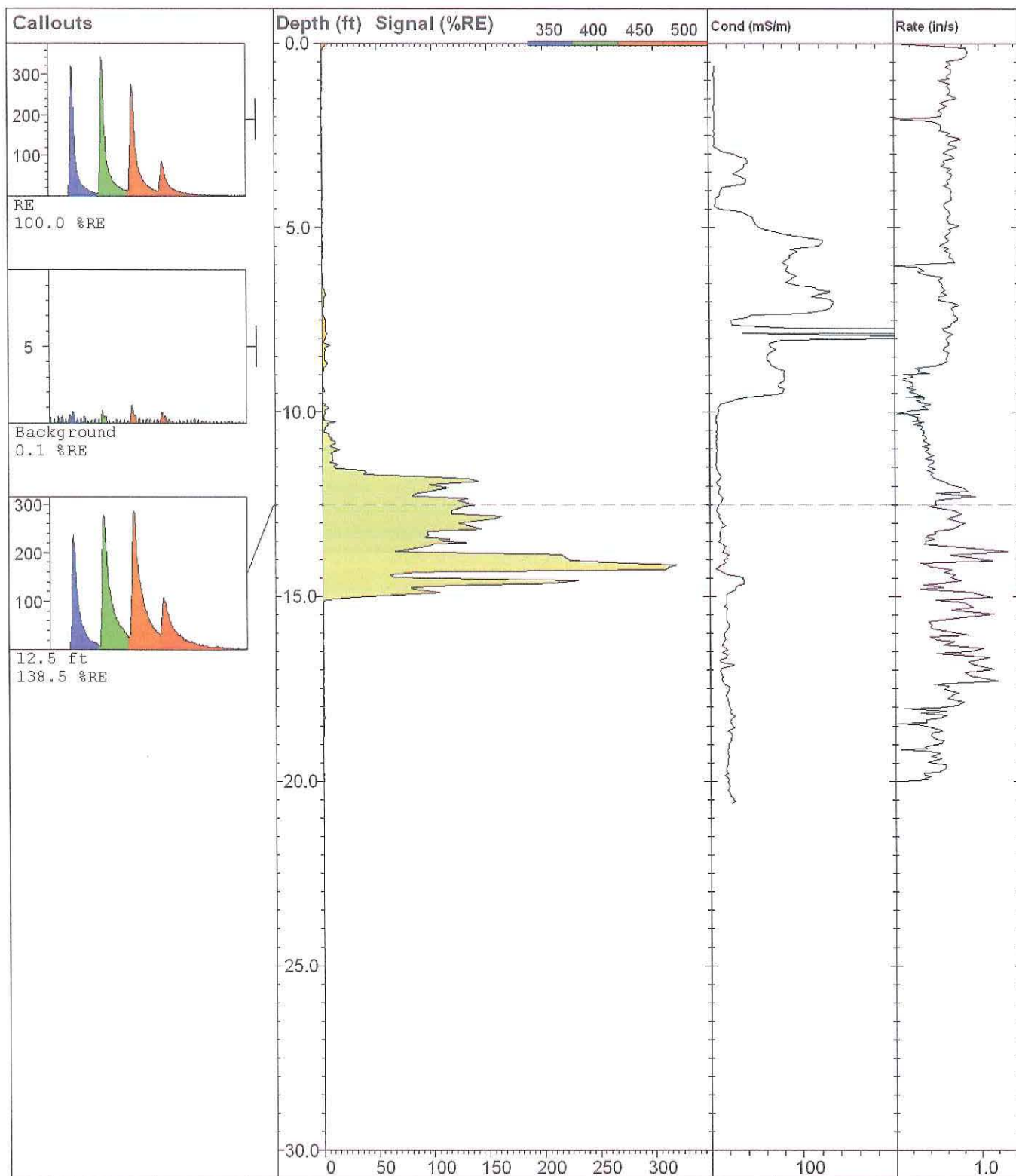
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
20.06 ft

Max signal:
70.4 %RE @ 8.94 ft

Date & Time:
2012-08-29 11:13 EDT



UV-021

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

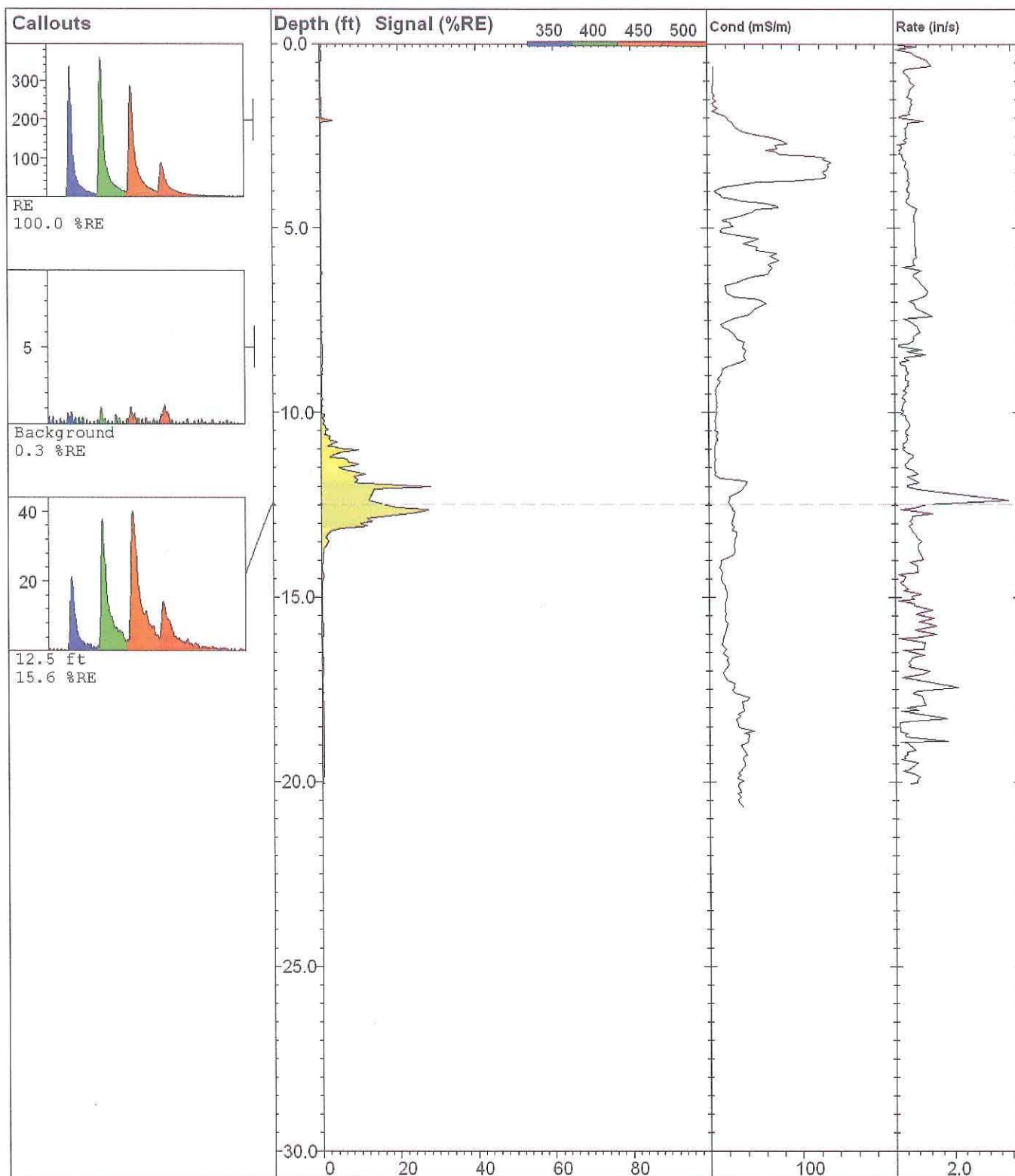
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
20.00 ft

Max signal:
320.3 %RE @ 14.14 ft

Date & Time:
2012-08-29 11:43 EDT



UV-022

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

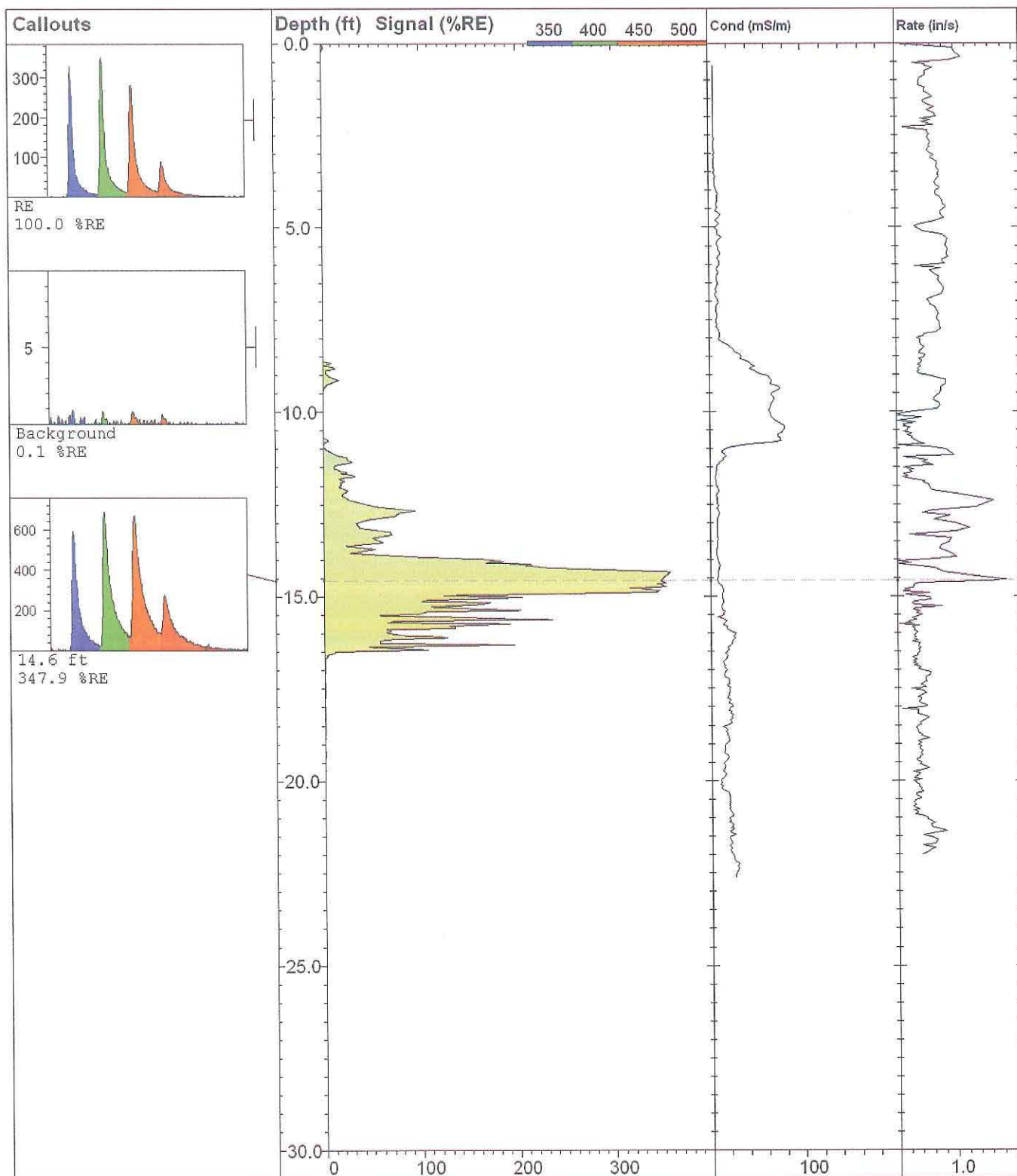
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
20.06 ft

Max signal:
28.2 %RE @ 12.01 ft

Date & Time:
2012-08-29 12:13 EDT



UV-023

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

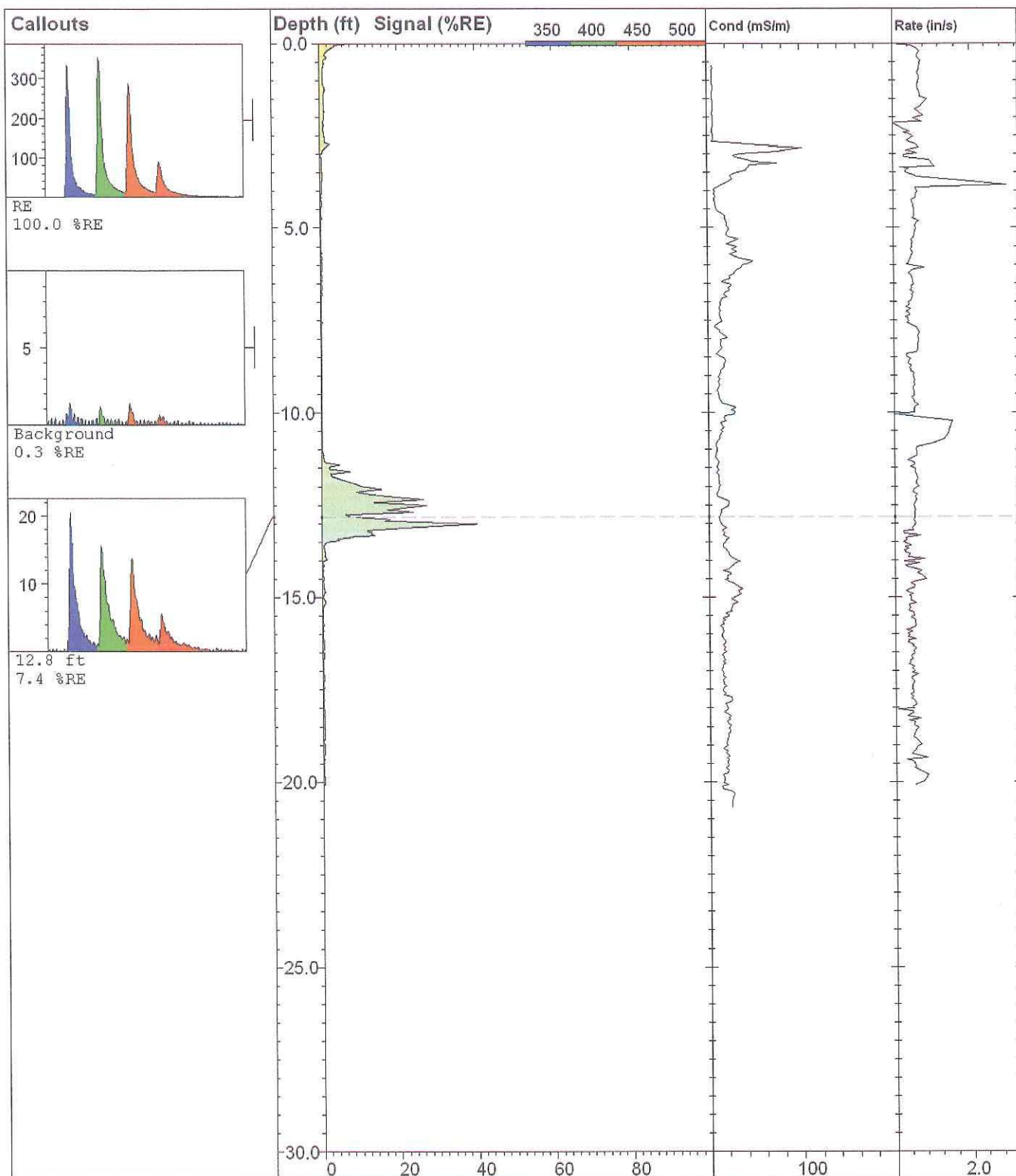
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
22.01 ft

Max signal:
358.1 %RE @ 14.33 ft

Date & Time:
2012-08-29 14:02 EDT



UV-024

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
20.07 ft

Client / Job:
Brownfield Restoration G

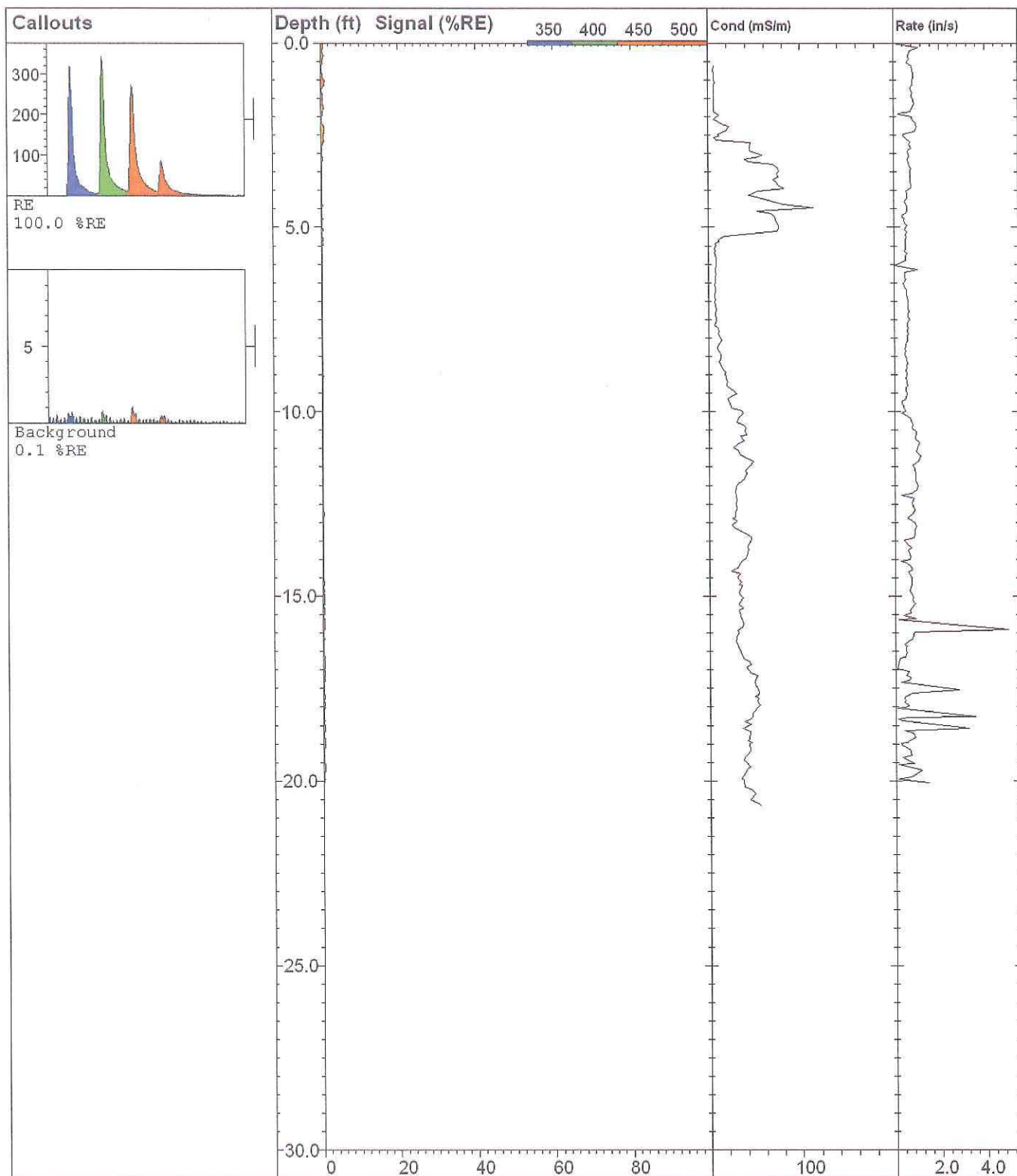
Longitude / Fix:
Unavailable / NA

Max signal:
40.4 %RE @ 13.01 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-29 14:34 EDT



UV-025

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
20.05 ft

Client / Job:
Brownfield Restoration G

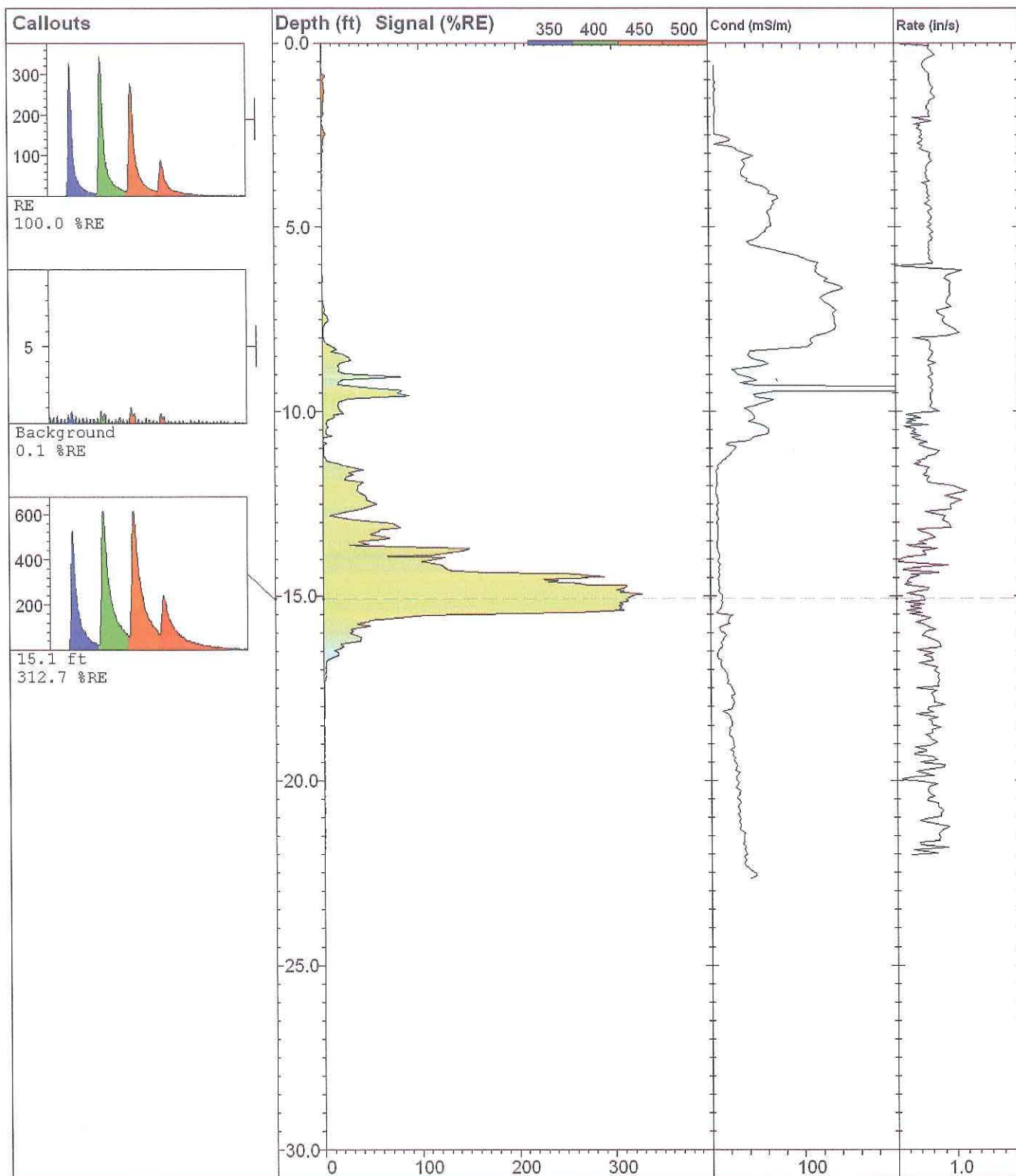
Longitude / Fix:
Unavailable / NA

Max signal:
1.0 %RE @ 1.04 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-29 15:07 EDT



UV-026

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

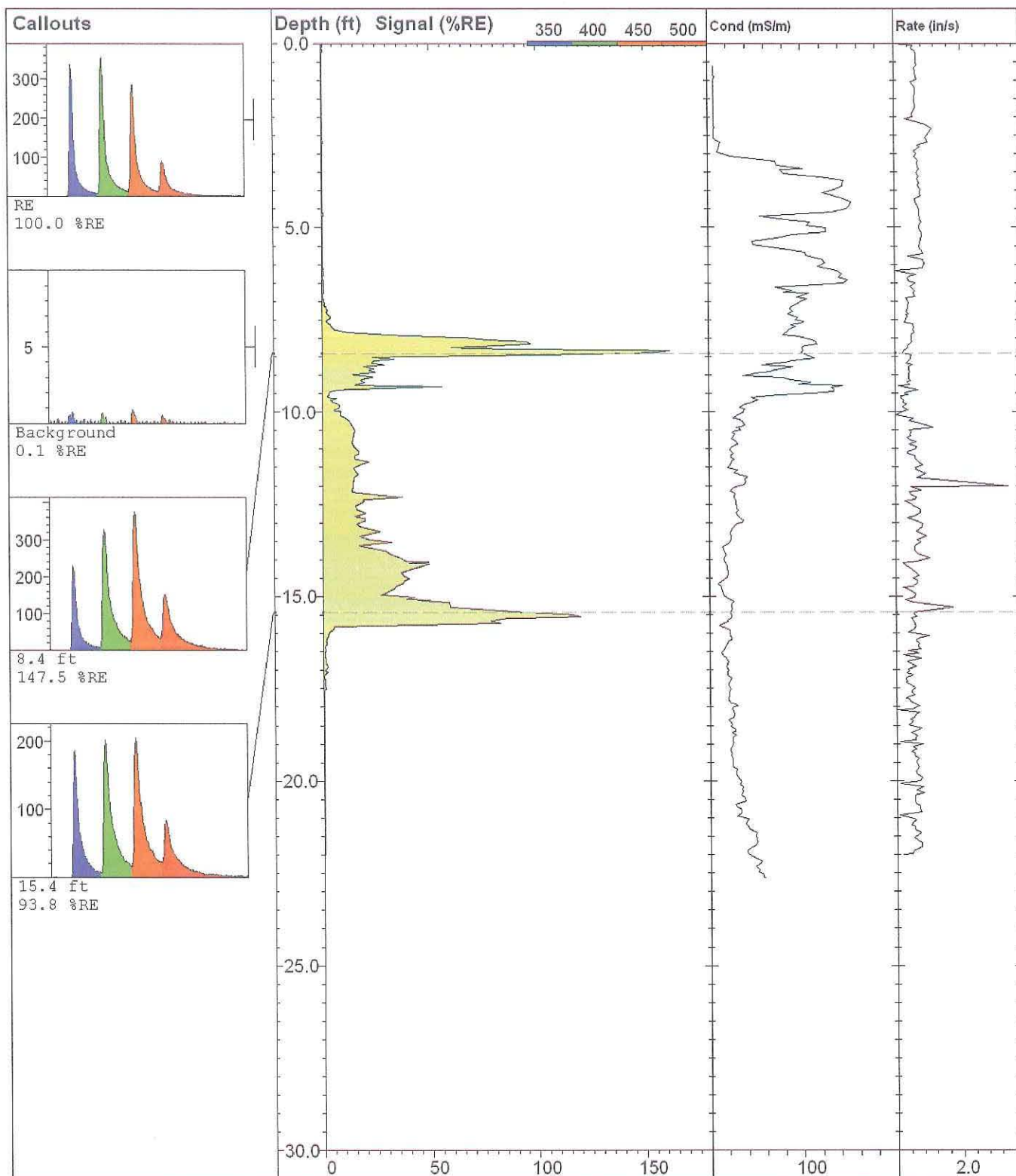
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
22.03 ft

Max signal:
329.3 %RE @ 14.94 ft

Date & Time:
2012-08-29 15:32 EDT



UV-027

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

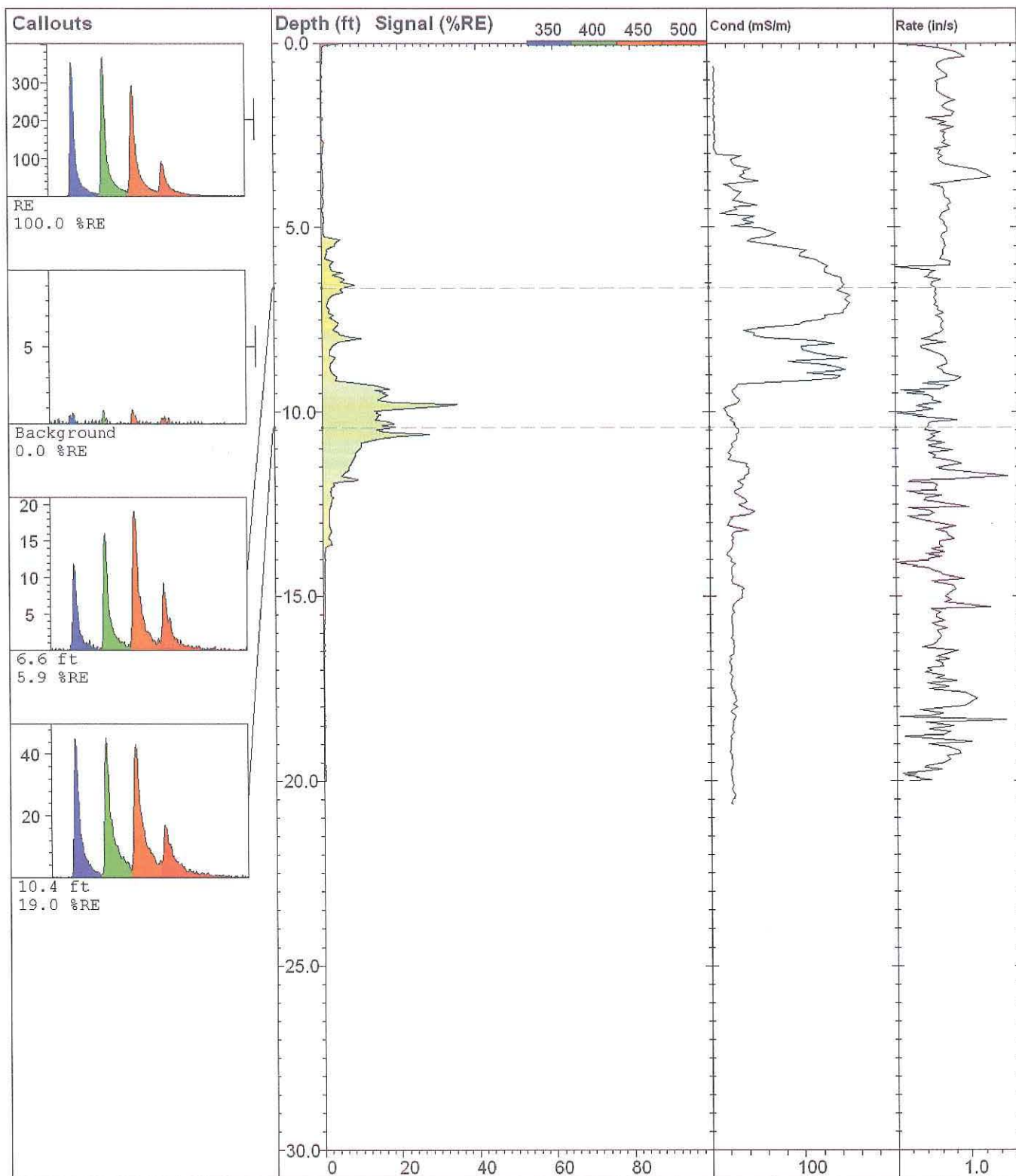
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
22.01 ft

Max signal:
162.1 %RE @ 8.34 ft

Date & Time:
2012-08-29 16:02 EDT



UV-028

UVOST By Dakota

www.DakotaTechnologies.com

Site:
J+L Lagoons

Latitude / Datum:
Unavailable / NA

Final depth:
20.02 ft

Client / Job:
Brownfield Restoration G

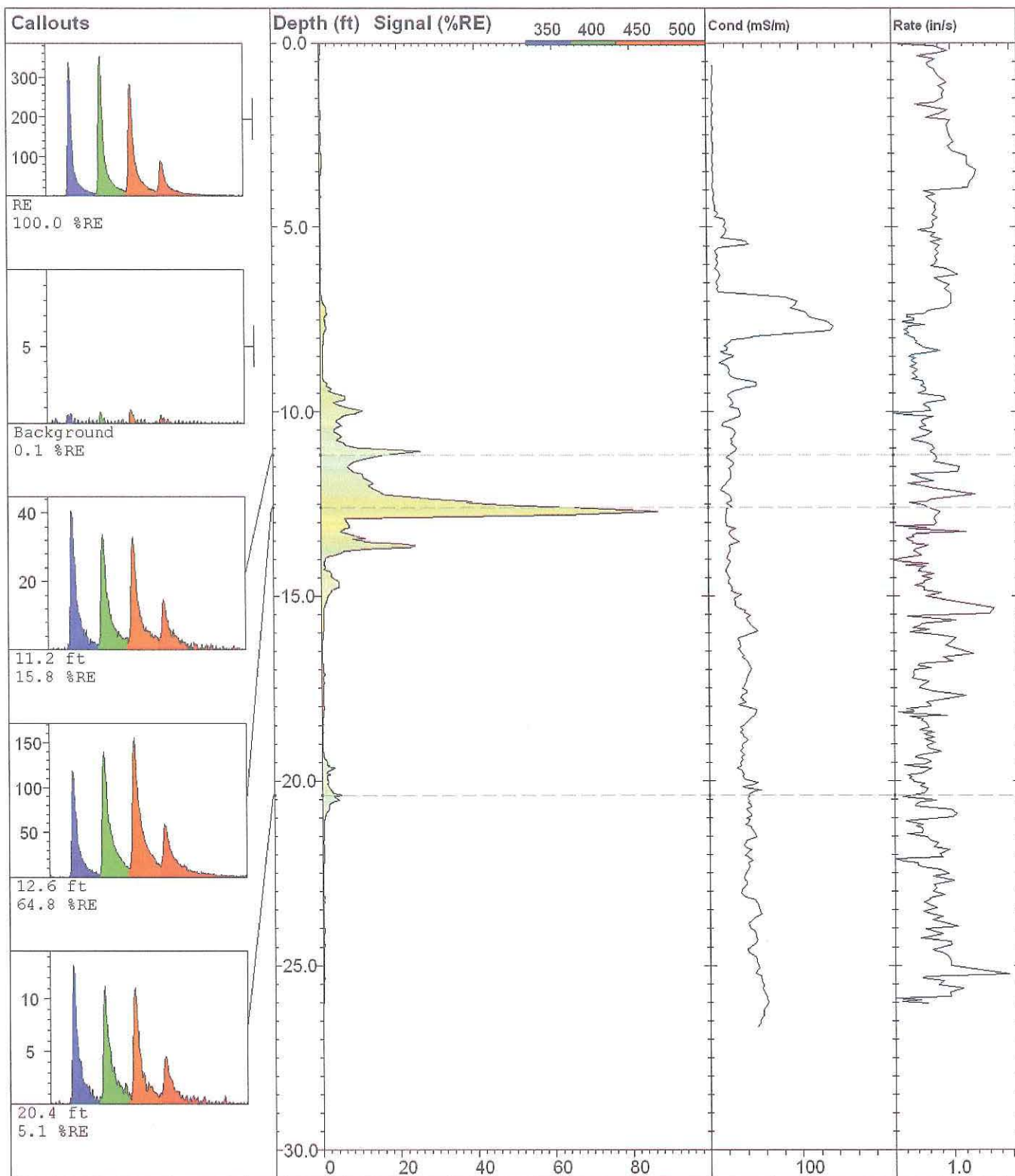
Longitude / Fix:
Unavailable / NA

Max signal:
34.6 %RE @ 9.80 ft

Operator/Unit:
AK/BG/UVOST1013

Elevation:
Unavailable

Date & Time:
2012-08-29 16:33 EDT



UV-029

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

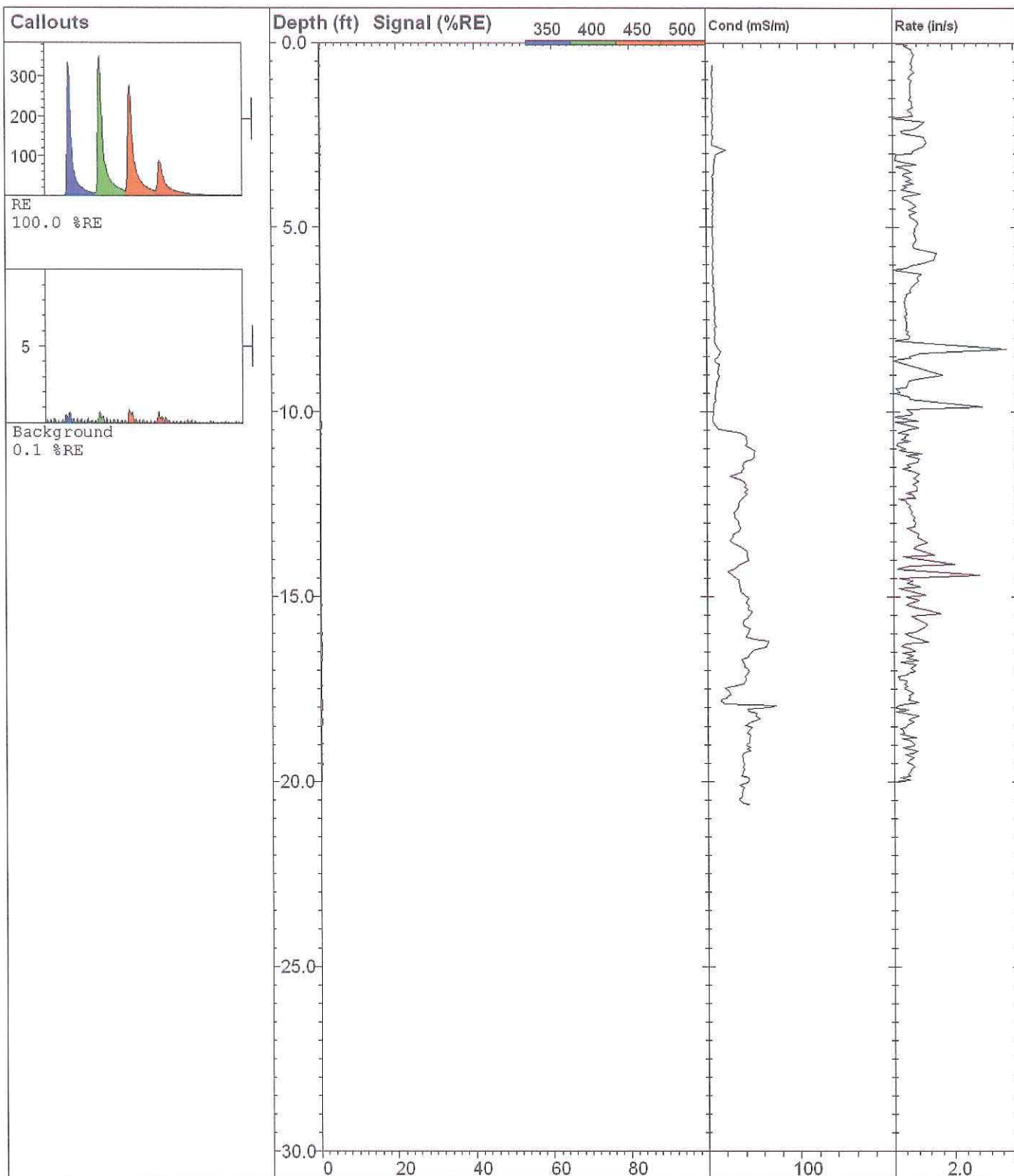
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
26.03 ft

Max signal:
87.0 %RE @ 12.71 ft

Date & Time:
2012-08-29 17:10 EDT



UV-030

Site:
J+L Lagoons

Client / Job:
Brownfield Restoration G

Operator/Unit:
AK/BG/UVOST1013

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Elevation:
Unavailable

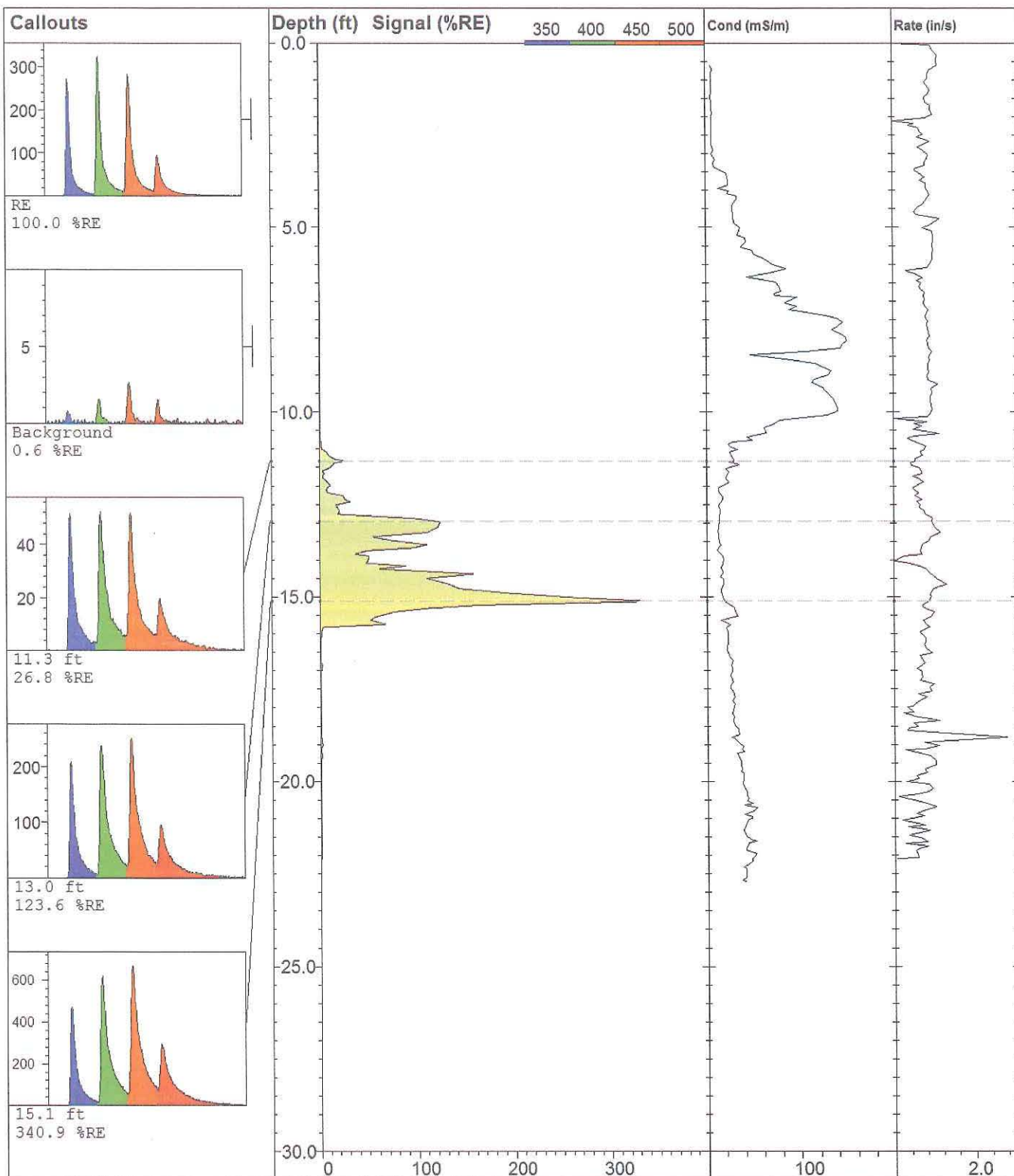
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
20.00 ft

Max signal:
0.5 %RE @ 17.91 ft

Date & Time:
2012-08-29 17:51 EDT



UV-043

Site:
J+L Lagoons

Client:
Brownfield Restoration G

Job:
093-OHDS-12

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
AK/SM/UVOST1013

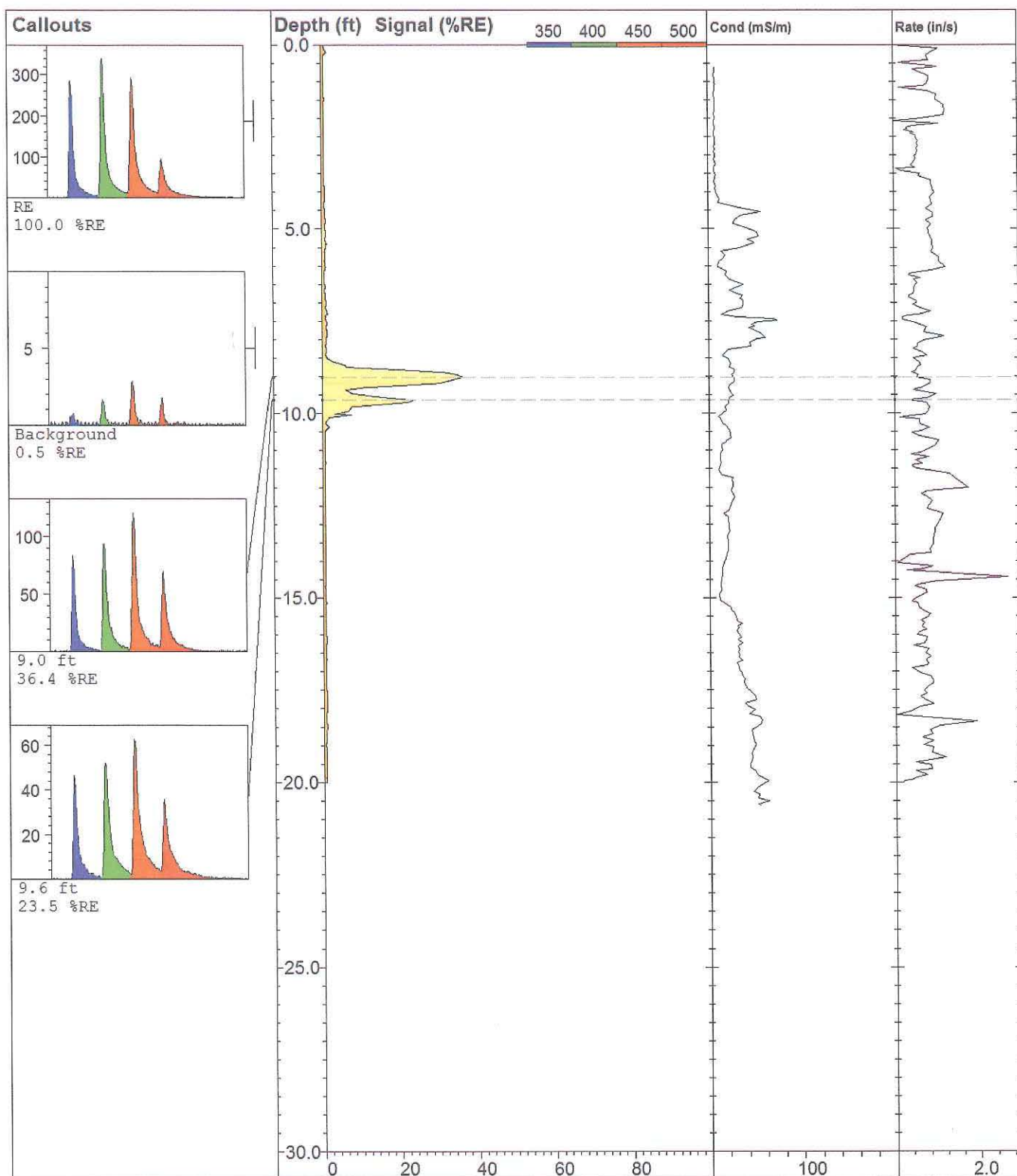
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
22.09 ft

Max signal:
340.9 % @ 15.11 ft

Date & Time:
2012-09-06 13:42 EDT



UV-044

Site:
J+L Lagoons

Client:
Brownfield Restoration G

Job:
093-OHDS-12

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
AK/SM/UVOST1013

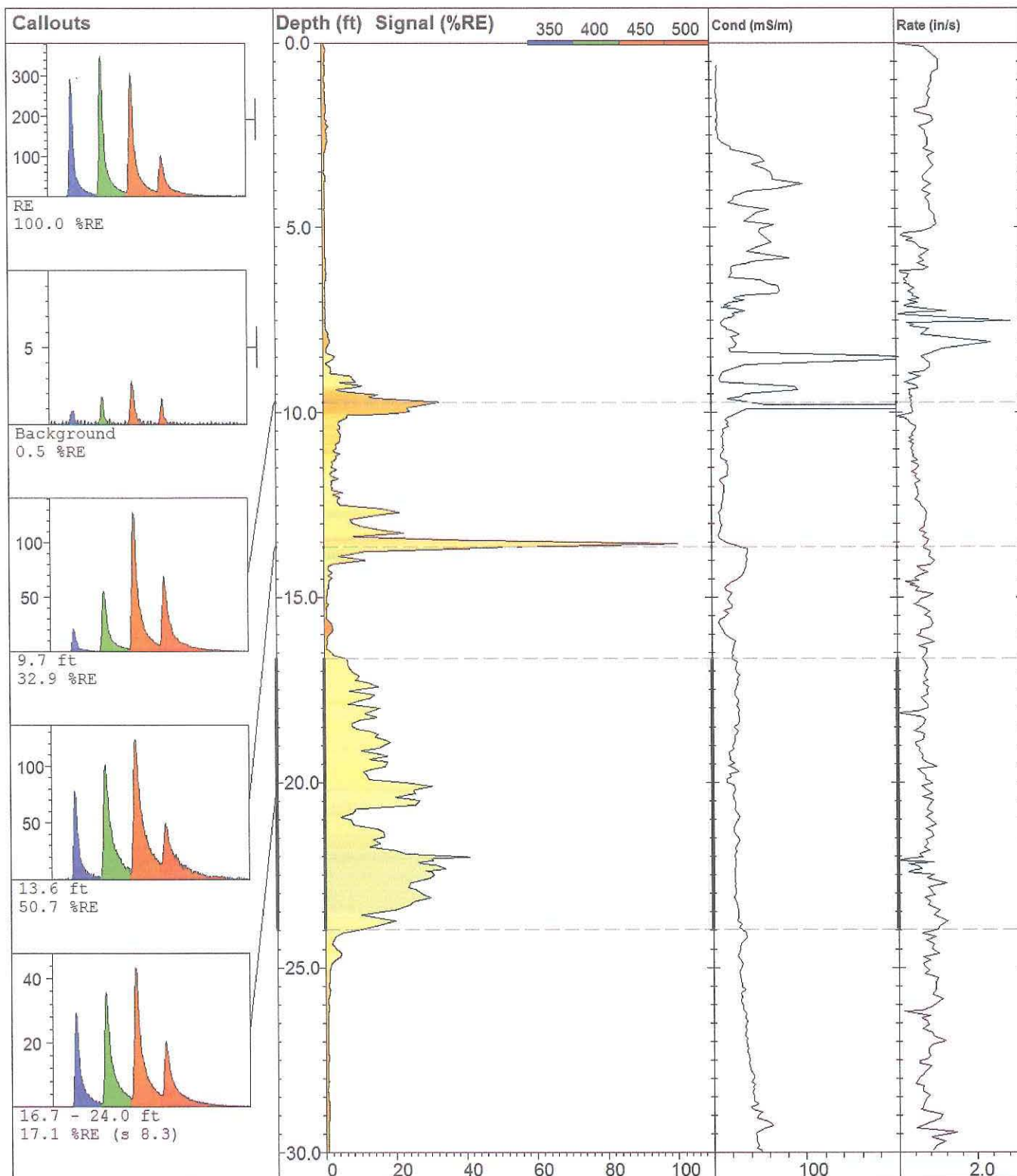
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
20.00 ft

Max signal:
36.4 % @ 9.02 ft

Date & Time:
2012-09-06 14:05 EDT



UV-045

Site:
J+L Lagoons

Client:
Brownfield Restoration G

Job:
093-OHDS-12

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

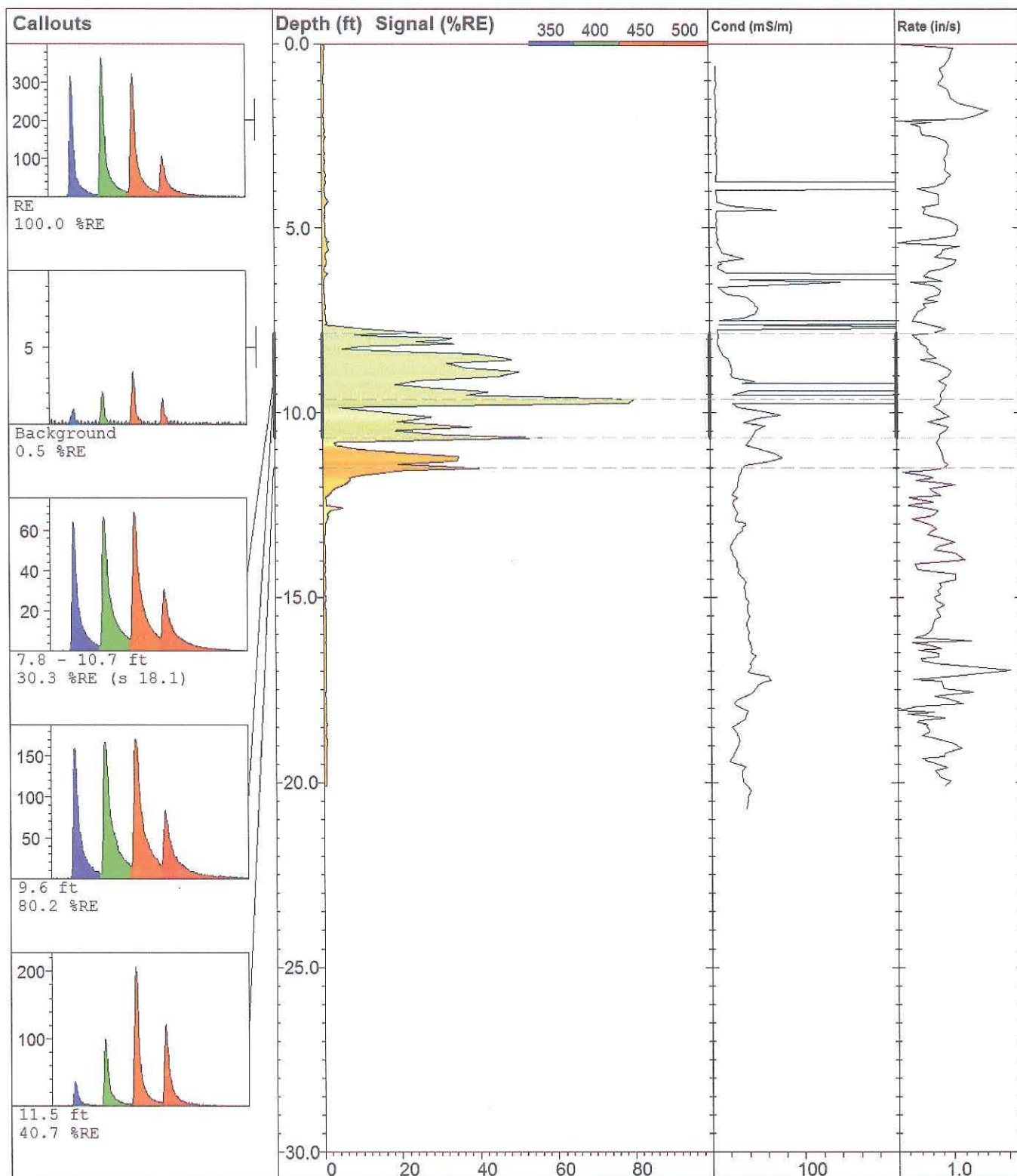
Operator/Unit:
AK/SM/UVOST1013

UVOST By Dakota
www.DakotaTechnologies.com

Final depth:
30.12 ft

Max signal:
101.0 % @ 13.55 ft

Date & Time:
2012-09-06 14:42 EDT



UV-046

Site:
J+L Lagoons

Client:
Brownfield Restoration G

Job:
093-OHDS-12

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
AK/SM/UVOST1013

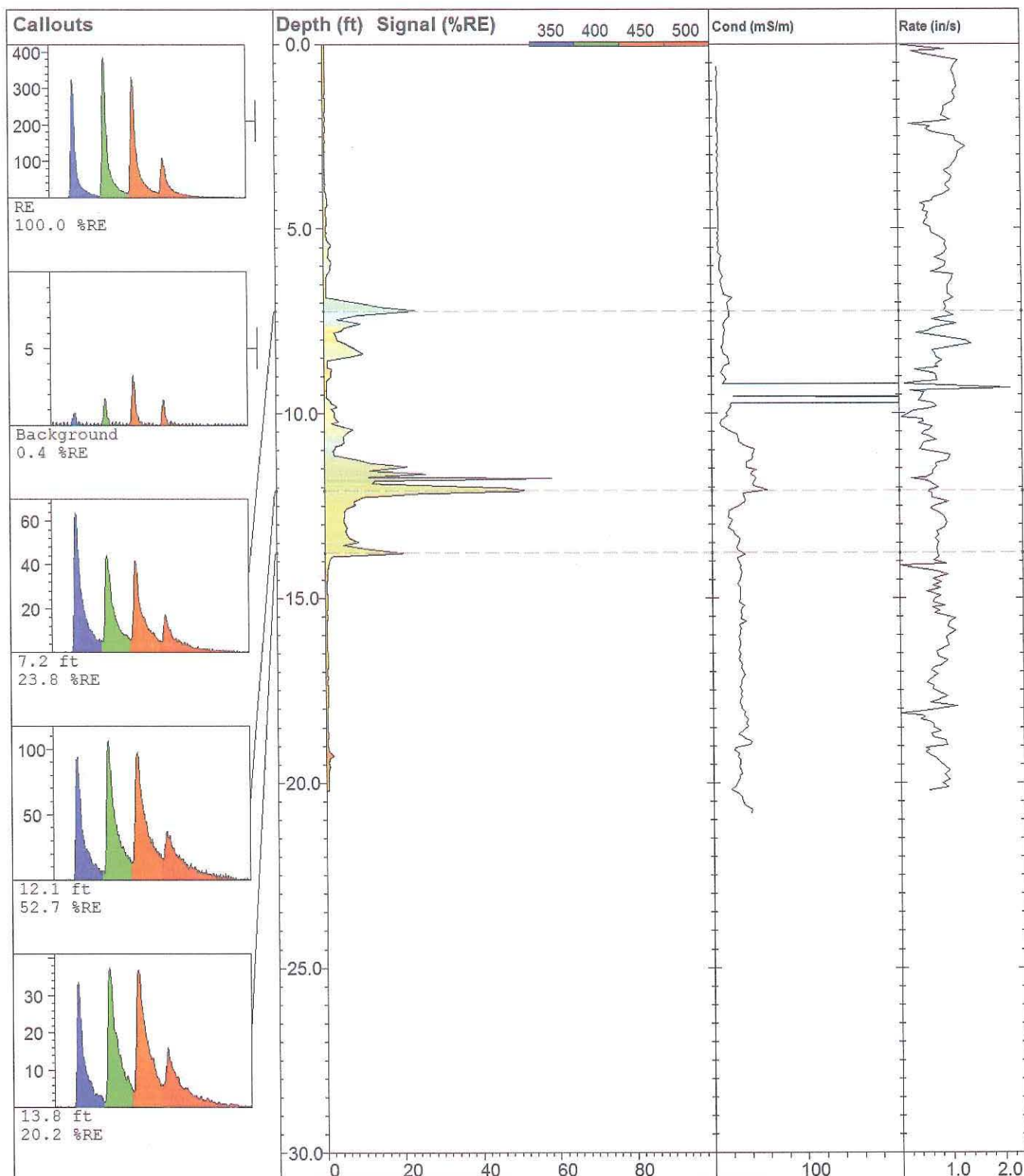
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
20.09 ft

Max signal:
80.2 % @ 9.64 ft

Date & Time:
2012-09-06 15:21 EDT



UV-047

Site:
J+L Lagoons

Client:
Brownfield Restoration G

Job:
093-OHDS-12

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

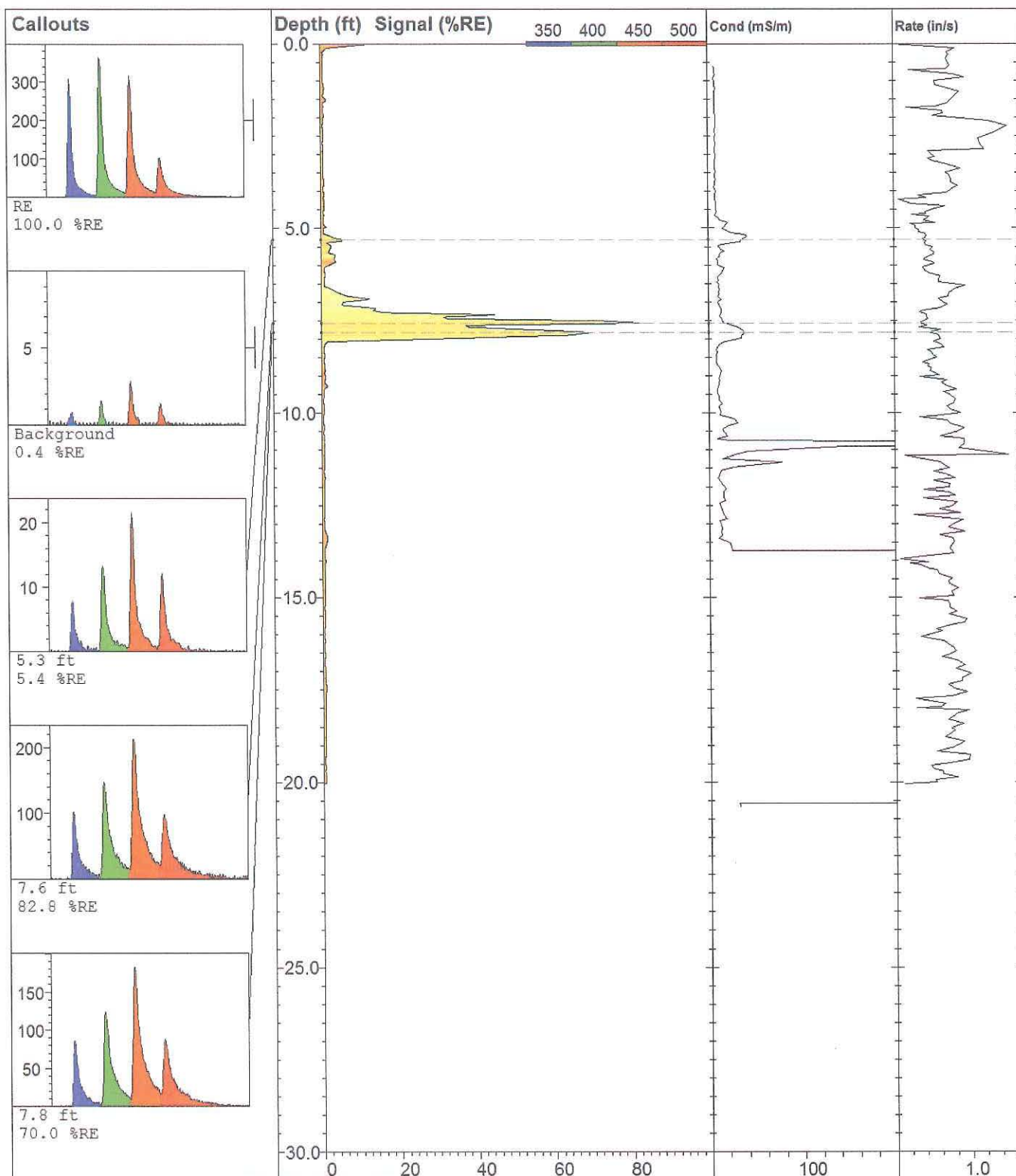
Operator/Unit:
AK/SM/UVOST1013

UVOST By Dakota
www.DakotaTechnologies.com

Final depth:
20.20 ft

Max signal:
60.0 % @ 11.76 ft

Date & Time:
2012-09-06 15:50 EDT



UV-048

Site:
J+L Lagoons

Client:
Brownfield Restoration G

Job:
093-OHDS-12

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

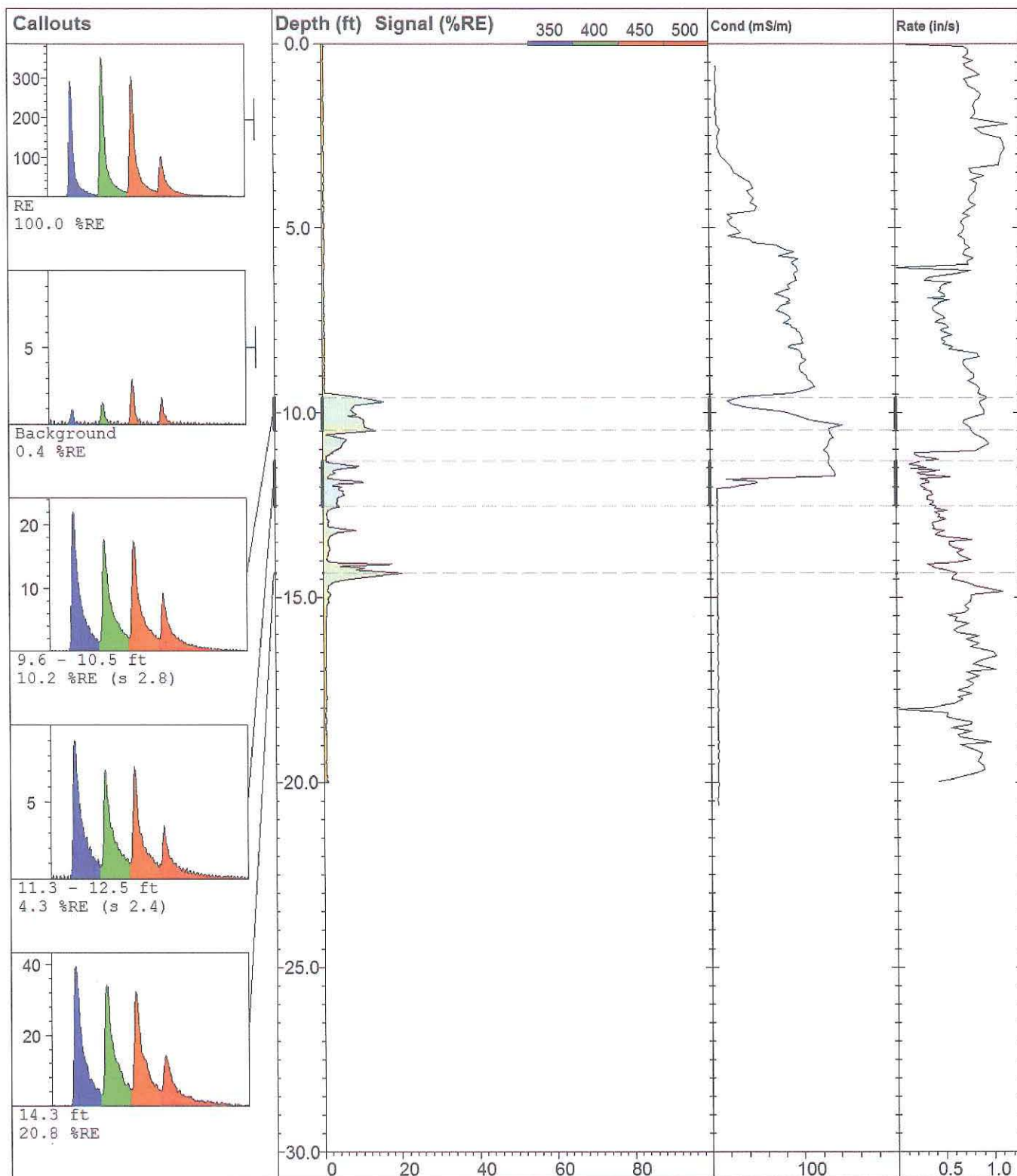
Operator/Unit:
AK/SM/UVOST1013

UVOST By Dakota
www.DakotaTechnologies.com

Final depth:
20.04 ft

Max signal:
82.8 % @ 7.57 ft

Date & Time:
2012-09-06 16:40 EDT



UV-049

Site:
J+L Lagoons

Client:
Brownfield Restoration G

Job:
093-OHDS-12

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
AK/SM/UVOST1013

UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
20.00 ft

Max signal:
20.8 % @ 14.34 ft

Date & Time:
2012-09-06 17:23 EDT

ATTACHMENT D

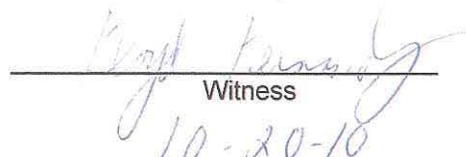
ATTACHMENT E

PERMISSION TO ENTER PROPERTY

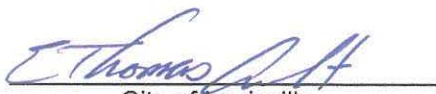
1. Groffre Investments ("Owner"), an Ohio Partnership, hereby grants permission to the City of Louisville, its agents, representatives, and subcontractors ("City") to enter Owner's property ("Property") located at 1500 West Main Street, Louisville, Ohio 44641.
2. This permission is contemplated to be used for the following activities which may be performed by the City:
 - a. Having access to areas where contamination may exist.
 - b. Investigation of soil and groundwater including, but not limited to, the installation and sampling of groundwater monitoring wells, the use of geophysical equipment, the use of an auger for the collection of soil and sediment samples, the logging of existing wells, video recording, preparation of site sketches, taking photographs, and similar or included activities.
 - c. Removal, treatment, and/or waste disposal of contaminated soil and water, which may include the installation of recovery wells or other treatment systems.
3. Upon completion of the investigation, the City will restore the Property as near as practicable to its condition immediately prior to the commencement of such activities.
4. The granting of this permission by the Owner is not intended, nor should it be construed, as an admission of liability on the part of the Owner or the Owner's successors and assigns for any contamination discovered on the Property.
5. The City may enter the Property during normal business hours and may also make special arrangements to enter the Property at other times after agreement from the Owner.
6. The City acknowledges and accepts any responsibility it may have under applicable law for damages caused by the acts of its employees, agents, representatives, and/ or subcontractors acting within the scope of their employment while on the Property.
7. Information obtained as a result of having access to the Property under this agreement may be used to evaluate the condition of the property for the purpose of a potential purchase and may also be used to apply for funding to assess and remediate the Property as may be required.
8. This agreement shall terminate two years after the final date of acceptance. The agreement can also be terminated by mutual consent of the City and Owner.

Accepted by the Owner by the following authorized agent:


Groffre Investments
10/20/2010
Date


Witness
10-20-10
Date

Accepted by the City by the following authorized agent:


City of Louisville
Oct. 20, 2010
Date


Witness
10/20/2010
Date

